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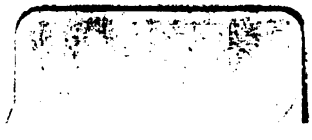

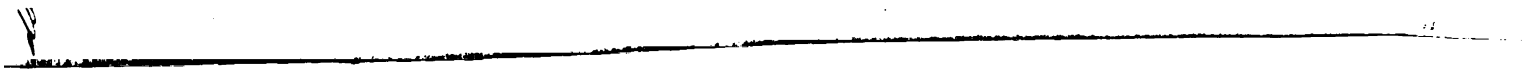

To Mr Donald Rees
with Mr Thomas Coats' kind regards
12th May 1875

VISIBLE SPEECH:

THE SCIENCE OF

UNIVERSAL ALPHABETICS;

OR

SELF-INTERPRETING PHYSIOLOGICAL LETTERS,

FOR THE WRITING OF

ALL LANGUAGES IN ONE ALPHABET.

ILLUSTRATED BY

TABLES, DIAGRAMS, AND EXAMPLES.

BY

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'STANDARD ELOCUTIONIST,' 'EMPHASIZED LITURGY,'
'REPORTER'S MANUAL,' &C., &C.

INAUGURAL EDITION.

SIMPKIN, MARSHALL & CO.: LONDON;
N. TRÜBNER & CO.: LONDON AND NEW YORK.
SOLD BY ALL BOOKSELLERS.
1867.

Price Fifteen Shillings.

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P227
B45

To the Memory of

EDWARD CHARLES BELL,

ONE OF THE FIRST PROFICIENTS IN "VISIBLE SPEECH,"

WHOSE ABILITY

IN DEMONSTRATING THE LINGUISTIC APPLICATIONS OF THE SYSTEM

EXCITED THE ADMIRATION OF ALL WHO HEARD HIM;

BUT WHOSE LIFE OF HIGHEST PROMISE WAS CUT OFF IN HIS

NINETEENTH YEAR,

ON 17TH MAY, 1867;

THIS INAUGURAL VOLUME IS DEDICATED

BY HIS FATHER.

903

CONTENTS.

	Page
Preface, ...	vii
Popular Description of the Organs of Speech, ...	11
Diagram of the Organs of Speech, ...	13
The Invention of Visible Speech, ...	14
TABULAR EXPOSITION OF VISIBLE SPEECH.	
Complete Table of Radical Symbols, ...	35
Ten Radical Symbols from which all Vowel and Consonant Letters are formed,	36
Complete Table of Letters—with their Names, ...	37
Diagrams showing the relation of the Primary Organic Symbols to the Organs,	38
Explanatory Table of Symbols for Vowel Configurations, ...	40
Table showing the mutual relation of Symbols and Sounds, ...	41
THEORETICAL EXPLANATIONS, EXERCISES, &c.	
Rudimental Symbols, ...	45
Exercises on the Rudimental Symbols, forming Interjectional or Inarticulate Utterances, ...	50
CONSONANTS, ...	51
Table of Organic Symbols, ...	52
Diagrams of the Consonant Organic Positions, ...	53
Description of the 'Inner' and 'Outer' Varieties of each of the Primary Consonants, ...	54
Table of the Mechanical Varieties of Consonants, ...	56
Diagrams of the Mechanical Varieties of Consonants.	57
Description of the Mechanical Varieties of Consonants, ...	58
'Inner' and 'Outer' Varieties of 'Divided' Consonants, ...	59
Uni-Lateral Formations, ...	*ib.*
Nasal Consonants, ...	*ib.*
Shut Consonants, ...	60
Consonant Suctions—Clicks, ...	62
Consonant Actions without Breath, ...	*ib.*
Comparative Diagrams of the Radical Consonant Positions,...	63
Example showing the Application of the Modifiers to a single Consonant action,	64
Interjectional Exercises on the Rudimental Consonant Symbols, ...	65
Voiced Consonants, ...	66
General Scheme of Consonants, ...	*ib.*
Imperfect and Variable Vocality of Consonants, ...	67
'Held' Consonants, ...	68
Consonant Combinations, ...	*ib.*
GLIDES, ...	69
Complete Table of the Glides, ...	70
VOWELS, ...	71
Vowel Symbols, ...	72
Diagrams showing the Relative Organic Formation of Vowels, ...	73

Page

Diagram showing the Scale formed by the Lingual Vowels, ... 74
Relation of Vowel to Consonant Positions, ... 75
Lip-Modified or 'Round' Vowels, ... 76
Symbols of Round Vowels, ... 77
Nasalized Vowels, ... *ib.*
Vowels of Gliding Quality—Diphthongs, ... 78
Vowel Quantity, ... 79
Linked Symbols, ... 80
Governing Signs, ... *ib.*
Analysis of Mixed Symbols and Optional Extension of the Principle, ... 82
Tones, ... *ib.*
Modulated Whisper, ... 86

APPLICATION OF VISIBLE SPEECH TO LANGUAGES.

The Elementary Sounds of Languages, ... 91
Letter-Value of the Principal Consonant Symbols, ... 93
Letter-Value of the Principal Symbols for Vowels and Glides, ... 94
Modes of Teaching the Universal Alphabet, ... 96
Typography of Visible Speech, ... 98
Visible Speech Writing, ... 100
Visible Speech Telegraphy, ... 102
Practical Tests, ... 104
Alphabetic Vocabulary of Test-words (Initial Vowels,) 105

VISIBLE SPEECH APPLIED TO ENGLISH.

Table of English Elements, ... 110
English Pronunciation, ... 111
Sounds of English Letters and Orthographies of English Sounds, ... *ib.*
Tendencies of English Pronunciation, ... 116
English Characteristics, ... 117
Syllabic Analysis, ... 118
Outline course of Lessons for Teaching the Illiterate to Read, ... 120
Mode of Deducing Foreign Sounds from their Symbols, ... 124
Note on the Zulu Clicks, ... 125

PLATES.

Alphabetic Vocabulary of Test-Words (Initial Consonants), . . I. II. III.
Interjectional and Inarticulate Sounds, and Dialectic Pronunciations of Numerals, ... IV.
Test Sentences,—Scottish, English, and Miscellaneous Dialects, . . V. VI.
Foreign-English, and Foreign Sentences, ... VII.
Shaksperian English,—Portia's Speech on Mercy; &c. . . . VIII.
Acts, Chap. xxvi. . . . . IX. X. XI.
Visible Speech Writing,—The Alphabet, ... XII.
St. John, Chap. xiv. . . . . XIII. XIV. XV.
The Lord's Prayer, in Capital, Lower-Case, and Script Alphabets, . XV.
I Corinthians, Chap. xiii. . . . . XVI.

PREFACE.

THE scientific interest attaching to the Invention of VISIBLE SPEECH has alone induced me to consent to the publication of the System under Copyright. My desire was, that this Invention—the applications of which are as universal as speech itself—should at its inauguration have been made free from all restrictions; but my endeavours to effect an arrangement for this purpose have been frustrated.

I wish to put on record here a statement of the facts concerning my offer of the Invention to the British Government, and the reception of the offer.

The proposition made was to the effect that—If the expense of casting the new Types and publishing the Theory of the System should be defrayed from Public resources, I would, on this simple condition, relinquish *pro bono publico* all copyright in the Explanatory Work, as well as all exclusive property in the System and its applications, in order that the use of the Universal Alphabet might be as free as that of common letters to all persons. I made no stipulation for personal recompense; nor was the acceptance of the offer asked, save as the result of a satisfactory examination of the System. The primary proposition was therefore specifically limited to a request for an authorized investigation, the result of which should decide the question of publication.

This request was made in vain. The subject did not lie within the province of any of the existing State Departments, and the Memorial was, on this ground, politely bowed out from one after the other of the Executive Offices.

The proposition was, no doubt, an exceptional one—but so is the Invention. Even the idea which it realizes is entirely new; the idea, namely, of representing the mechanism of speech-sounds in their alphabetical symbols. It was a matter of course that such a subject could not have been included in the established routine of any Department.

Does not the fact that an offer of such a nature failed to *obtain a hearing*, indicate a national want—the want namely of some functionary whose *business* it should be to investigate new measures of any kind which may be presented for the benefit of society?

Before offering the Invention of Visible Speech to Government, I had subjected the System to a crucial variety of practical and public tests, so that a fair *prima facie* case had been made out to justify even so unheard-of a thing as investigation by a Royal Commission. But credentials could, of course, have no weight when the ground of rejection was that of inability to take 'official cognizance' of the subject.

This very unsatisfactory reason for neglecting an offer, which I was not alone in thinking both liberal and patriotic, as well as sufficiently important for recognition, induced me, before issuing the Circular announcing the present publication, to make a final appeal to Her Majesty's Prime Minister, specifying the amount to which the requisite grant for inaugural expenses might be limited. The following was his Lordship's reply:

" 10 Downing Street, Whitehall,
February 12, 1867.

Sir,—I am directed by Lord Derby to acknowledge the receipt of your letter of the 8th instant, and to inform you that there are no public funds from which he can make you the grant you desire.

I have the honour to be, Sir,
Your obedient Servant,

A. Melville Bell, Esq. W. P. TALBOT."

This was at all events definite; and the fact of there being no available 'public funds' for such a purpose, certainly furnished sufficient reason for denial. But the fact is, nevertheless, remarkable. The price of a piece of ordnance, and a few barrels of gunpowder—the cost of an every-day experiment in target-firing—ought surely to have been forthcoming from some 'public fund' for the advancement of one of the foremost Arts of Peace.

The choice was now left but between two alternatives: either to withhold the Invention, or to publish it under copyright;—in the latter case, to impose local restrictions on what was in its nature universal; in the former case, to render nugatory the results of a long labour. For the System was of course worthless while unpublished.

Having put my hand to the plough, I would not turn back—

'Aut non tentaris aut perfice'—

I therefore accepted the obligation which this 'Inaugural Edition' fulfils.

The time will, I hope, come when the Chamberses and Cassells of Literature will be able to issue their penny sheets in the new type to convert the unlettered millions in all countries into readers. But the System cannot be popularized by the present theoretical, and, necessarily, expensive Work. My sole object here is to communicate the System as the basis of a new science of UNIVERSAL ALPHABETICS.

The investigation which was vainly sought for from pre-occupied Statesmen, can now be made at leisure by the scientific world. If its judgment be favourable to the adoption of this scheme for macadamizing the linguistic highways between nations, the requisite facilities may ultimately be made available; but, in the meantime, the offer to relinquish copyright is withdrawn, and all rights of reproduction, translation, &c., are reserved.

My previous proposal for an unrestricted publication renders this definite intimation of the reservation of copyright necessary to prevent mistakes.

The unavoidable effect in this peculiar case will unfortunately be, to retard the popular promulgation of this System of Letters *in the country of its birth*, while in countries where the rights of foreign authors are disregarded, the System may be at once brought freely into use. This result was, however, duly pointed out, and the anomaly was sought to be prevented.

Persons who may be desirous of bringing any part of the System into practical application, by publications or otherwise, will be enabled to do so, under conditions which may be mutually arranged.

The symbols appear at some disadvantage, from the comparative coarseness of the experimental types, and also in the absence of illustration from 'lower case' letters. The aspect of the symbols in the latter form may be judged of by the lithographed specimens at the end of the volume; but letters individually drawn by hand want the clearness, compactness, and uniformity of typographs. Letter-press exemplification was not contemplated when the Prospectus of this Work was issued—lithographic illustration only having been intended; but in the development of the System for publication, a constant reference to Plates was felt to be an intolerable inconvenience—to the Student of the System the inconvenience would have been even greater;—and therefore a fount of types to work with the common letter-press has been extemporized.

The new letters—as shown in this work—are all of equal height, and they consequently have the effect of CAPITALS. The 'lower case' letters, it will be seen, possess an additional element of perspicuity, from the ascending and descending

lines of the vowels. The 'capital' form has simply been preferred for the present purpose, because of the larger scale which it allowed for the exhibition of the organic symbols.

A system of this nature would be much more easily explained orally than in print. This inherent difficulty arises from the impossibility of communicating an exact knowledge of sounds *before* the appropriate symbols of the System are understood. An hour of *viva voce* instruction would save the majority of Students many hours of uncertain reading, and enable them to commence at once with the Symbols, instead of having first to gather a general knowledge of the basis of the System, by the perusal of preliminary explanations.

On this account I recommended that, in connection with the Inaugural Publication from public resources, which was originally proposed, a temporary arrangement should be added for giving the benefit of oral exemplifications to the first learners. A weekly or bi-weekly free Lecture in connection with the 'Science and Art Department' at South Kensington would have started a large number of learners pleasantly over initiatory difficulties.

In developing the theory in the following pages, I have endeavoured so to arrange the matter that a general knowledge of the essentials of the System may be gathered from the Tables and Diagrams alone. (See pages 35 to 41). These are, however, supplemented by a full detail of Explanations and Illustrations, to which reference will of course be made as required.

The reader will bear in mind, that *all* the phenomena of Universal Speech are included in this Work. He must not suppose that the varied and minute distinctions of the System require to be mastered by every learner. The youngest child may be taught to read from the Symbols—of course, without any theoretical knowledge. A full understanding of the Theory is essential only to Teachers and Symbolizers— or writers of sounds at hearing.

In presenting the System with the requisite completeness for all purposes, I have found it difficult—with so much of necessary detail to be communicated —to preserve the *aspect* of simplicity. But the learner will discover the real simplicity of the Symbolization in connection with the known sounds of his own language; and when he has mastered vernacular reading, foreign varieties of sound will present little or no difficulty.

A. M. B.

London, N.W.
18 *Harrington Square, August*, 1867.

VISIBLE SPEECH.

POPULAR DESCRIPTION OF THE ORGANS OF SPEECH.

THE lungs constitute the bellows of the speaking machine; the larynx, the pharynx, the soft palate, the nose, and the mouth, modify the breath into the elementary sounds of speech.

The lungs are enclosed within the chest, and in healthful respiration they are acted on chiefly by upward pressure of the diaphragm, or midriff, which separates the chest from the abdomen. In faulty respiration the sides of the chest are drawn in upon the lungs to force out the breath, and the natural action of the diaphragm is reversed. Stammerers generally exemplify this error.

The breath driven from the lungs ascends the windpipe, and its emission is rendered audible only by the resistance which it meets with in the throat, the nostrils, or the mouth.

On the top of the windpipe is placed the larynx,—the vocalizing part of the speaking machine. The larynx is practically a box, the cavity of which is susceptible of a multitude of modifications affecting the pitch of the voice. The orifice of the larynx—the glottis—may be perfectly closed, fully expanded, or contracted in any degree.

When the whole of the guttural passage is fully expanded, the passing breath creates no sound; but when the glottis, or aperture of the larynx, is definitely narrowed, its edges vibrate and produce the sound which is called voice. Voice is thus the mechanical result of vibration of the edges of the glottis. These latter have, from this cause, received the name of the 'vocal ligaments.'

Above the glottis, and forming part of the larynx, is what may be considered as a pair of lips, the aperture between which is called the 'superior,' or 'false glottis.' The latter, and the passage between the larynx and the mouth, are susceptible of a variety of changes of shape and expansion. A moderate degree of contraction gives the breath the rustling quality called 'whisper;' and a greater contraction, with a strong current of breath, creates the resonant but non-vocal vibration, which will be understood by the term 'growling.'

The passage between the larynx and the mouth is called the pharynx. This cavity is susceptible of various degrees of expansion and contraction; and these modifications of the pharynx, assisted by the position of the pendulous soft palate, play an important part in the formation of the elements of speech.

The percussive effect of consonants results mainly from the elasticity of the muscles of the pharynx, which compress the breath behind the articulating organs in proportion as the latter restrain its issue through the mouth. In forming vowels, the pharynx is for one set of sounds, partially, and for another set fully, expanded.

In front of the pharynx is the mouth; and at the top of the pharynx, behind the soft palate, is the entrance to the nasal passages. When the soft palate is raised, it prevents the breath from passing into the nose, and when it is depressed, the breath flows through the nostrils as well as into the mouth.

The soft palate acts the part of a double valve, closing the nasal passage by upward pressure, and closing the mouth by downward contact with the tongue. Both passages are shut in this manner in forming the consonant K; the oral passage is closed and the nasal passage open in forming NG; both passages are open in forming the French *in*, *on*, &c.; and the oral passage is open and the nasal passage shut in forming vowels.

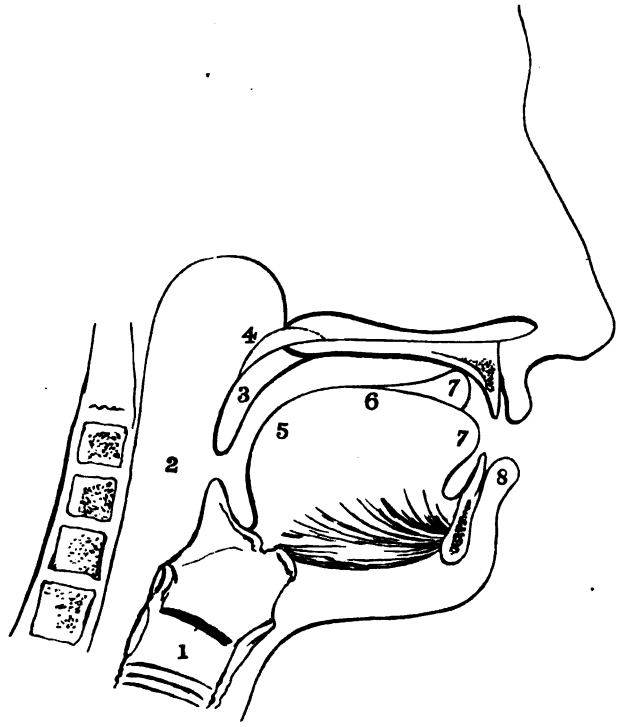
The roof of the mouth is an arch; and the tongue, as its various parts,—the back, the front, or the point,—are presented to the back, the front, or the rim of the palatal arch, or the upper gum, gives a great variety of configurations to the channel of the mouth. From each of these configurations the passing breath or voice receives an audibly different effect, of vowel or of consonant quality. Further modifications result from the degree of contraction of the lips, the condition of the guttural passage, &c.

In forming CONSONANTS, the breath or voice is *stopped* or *squeezed*, with an effect of percussion, sibilation, buzzing, or vibration, in some part of the guttural

or oral passage; and in forming VOWELS, the breath or voice flows through similar but more open and 'fixed' configurations, which merely shape or *mould* the breath, without impeding its emission.

The following Diagram shows the relative position of the various organs:—

DIAGRAM OF THE ORGANS OF SPEECH.



1. The Larynx.
2. The Pharynx.
3. The Soft Palate.
4. The action of the Soft Palate in closing the Nasal Passage.
5. The Back of the Tongue.
6. The Front of the Tongue.
7. The Point of the Tongue.
8. The Lips.

THE INVENTION OF VISIBLE SPEECH.

THE system of Visible Speech was elaborated slowly during the course of a great many years. In 1849, the Author wrote, in his 'Principles of Speech,' having reference only to English sounds :—'It would really be a matter of but little difficulty to reconstruct our alphabet, and furnish it with invariable marks for every appreciable variety of vocal and articulate sound. So few as twelve radical letters might be made to represent all the English articulations (consonants.) Thus: we have twelve forms of articulative action, most of which do, and all of which may, modify both voice and breath, so producing twenty-four elements of speech. Let some uniform change to represent *breath* and *voice* be made on each of the twelve characters, and these twenty-four varieties of articulate sound may be not only fully represented, but with a natural analogy and consistency which would explain to the eye their organic relations.

'A further uniform change made on those letters which have a *nasal* correspondent, would complete the scheme, and with perfect analogy between marks and sounds, exhibit, by twelve radical letters, every articulation in our language.

'Some equally simple and analogical notation might be arranged for the vowels, on the principle of their sequence; so that a really scientific alphabet could be easily constructed.'

The practicability of extending this mode of representation to all *possible* sounds, was conceived and ultimately became a persistent idea. But the necessary pre-requisite for carrying out the idea was to obtain a knowledge of the exact relations of sounds, and the conditions to which they owed their differences. This knowledge could only be acquired from observation and experiment. For these, fortunately, opportunities were abundant.

Professional pursuits directly favoured the investigation, by furnishing a constant variety of examples for study and corroboration; and year by year the subject grew in interest, and was unceasingly prosecuted. Gradually the category of known sounds increased, and their mutual relations became more and more definite. Still, so recently as 186?, when a new edition of the 'Principles of Speech'* was called for, the Author had not advanced beyond his original triple scale of vowels, consisting of the three classes,

Lingual, Labio-Lingual, Labial;

* Principles of Speech and Cure of Stammering. London: Hamilton, Adams & Co.

the first series starting with the close ēē ; the third with the close ōō, and the intermediate with the German ü ; and each series terminating in the most open vowel *ah.*

The classification of vowels on this basis included twenty-two varieties ; but the scheme was acknowledged to be far from complete for the representation of other than European languages :—

" The plasticity of the organs which modify voice is so great, that there may be many other shades of sound heard in other languages."*

" The plasticity of the organs is so great, that shades of vowel quality are endless, arising from infinitesimal differences in the relative positions of the lips and the tongue. The number of possible varieties can as little be estimated as the number of possible shades of colour."†

The expectation of ultimate success in the construction of a complete Physiological Alphabet, on the principle of Elementary Relations, was now, however, fully entertained :—

" In this way a system of notation might be constructed by which all the sounds of any dialect might be represented intelligibly to readers of whatever country or tongue. A Table of all recognized elements of speech on this natural principle of arrangement would be one step toward the realization of that indefinite philological speculation,—a universal language."‡

The number of sounds that had been by this time clearly discerned as they were experimentally produced, was perplexing ; the more so that some of them could not be made to fit into either of the three classes in the scale. This led to the conclusion that the framework of the Vowel Table was at fault, and quires of paper were covered with attempts at new arrangements which might incorporate the excluded elements.

One sound—that of the English *err, sir,* &c.—was confessedly out of place in the published Table, but the Table evidently did not contain a place where the sound could be satisfactorily located. This sound haunted the ear and the mouth by day and night, 'seeking rest but finding none ;' and with it flitted a train of obviously kindred sounds, clamouring for recognition. Among them were an American sound heard in the words *err, sir,* &c., very different from the ordinary English sound in the same words, yet having some features of family resemblance ; the French vowel in 'que,' and the obscure sounds of the English

---

* 1849 edition, p. 28. † 1863 edition, p. 27. ‡ 1863 edition, p. 32.

articles 'a' and 'the;' all of which were felt to be mutually related in some undiscovered way.

The revisal of the 'Principles of Speech' had re-opened the whole question of elementary relations, and the experimental classifications which followed, resulted in the identification of a new category of vowels,—a series moulded simultaneously by the back and the front surfaces of the tongue. Next, the discovery that these sounds were each susceptible of labial modification, corresponding to that of ü (on the 'high front' vowel ēē,) revealed the principle that the so-called Labial Vowels were all, in reality, compound formations, in which a definite lingual quality was involved. The analysis of the English vowels *oo*, *o*, and *aw*, by removal of labial modification, cleared away the whole remaining mystery.

It was evident that there were three classes of purely lingual vowels, moulded respectively by the back, the front, and by 'mixed' back and front positions of the tongue; and that each element in this triple scale was the basis of another vowel, in forming which a definite labial modification was simply added. There were then *six* sets of vowels instead of three, as formerly supposed, one half being labialized or 'rounded' forms of the other half.

The longitudinal division of the tongue into three principal sections, as afterwards explained, suggested a corresponding tri-partition of the aperture between the tongue and the palate, according to the 'high,' 'mid,' or 'low' position of the tongue; and the nine points thus obtained furnished the means of noting, as by lines of latitude and longitude, the precise *place* of any vowel in the mouth.

The arrangement may be illustrated by the following Diagram, in which the letters *a b c*, &c., stand for vowel sounds:—

	Back.	*Mixed.*	*Front.*
High,	a	d	g
Mid,	b	e	h
Low	c	f	i

These nine fixed points enabled minor degrees to be measured from them by simple diacritic signs for 'inner,' 'outer,' 'higher,' and 'lower' positions; so that the absolute representative power of the principle extended to nine degrees of horizontal and nine of vertical measurement.

This power of discrimination was enormously in excess of all possible necessity; and it was found that the cardinal degrees were amply sufficient for all practical purposes, in connection with another distinction which now revealed

itself: the distinction between Primary Vowels or those most allied to Consonants, and Wide Vowels or those in forming which the pharynx or guttural passage is fully expanded. Each of the lingual positions furnished both a primary and a wide vowel, so that the scale was fixed for purposes of notation at nine primary and nine wide vowels, formed exclusively by the tongue.

No instance has occurred in the experimental writing of languages in which the minor distinctions of 'inner,' 'outer,' 'higher', or 'lower' positions have been necessary; but these discriminations are still available should they be required.

All the wandering vowels were now provided for; and as each sound fell into its proper place, its neighbour-sounds took up their positions with perfect harmony. The framework of the scale was, however, larger than the number of known sounds could fill; but the gaps which remained here and there showed the exact places of other possible varieties; and experiment proved that the missing sounds could all be produced by organic arrangements corresponding with the theoretical classification. In fact, any desired sound, known or unknown, could be produced at pleasure by first adjusting the organs tentatively for its neighbour-sounds, and then allowing these to coalesce, as it were, into an intermediate.

The most perfect facility, too, was found in evoking in this way, totally unheard vowels from the organs of other persons; and this fact led to the discovery,—which had not hitherto been reached,—that the scheme, thus demonstrably *Physiological*, solved the problem of a UNIVERSAL ALPHABET.

A new stimulus was thus given to the prosecution of the subject, and the Consonants were investigated in the light shed on the oral actions by the Vowel Scales.

The Consonants were much more easily classified, as their organic formation was more obvious; and former results had left comparatively little to be done in order to form a correspondingly complete scale. An important discovery was, however, made in tabulating these elements: their relation to the various parts of the Vowel Scale was ascertained; the true cause of consonantal, as distinct from vowel effect, was made manifest, and a New Class of Elements, intermediate to vowels and consonants, was recognised. These 'glides,' or true *semi-vowels*, completed the scheme of Linguistic Sounds, joining the vowels and consonants into one harmonious scale.

The classification proved its own completeness, by the unbroken catenation of the sounds, and it now became possible to indicate with absolute precision a

multitude of nice discriminations in the oral adjustments, from each of which some difference of phonetic effect necessarily and uniformly resulted.

If it were but possible to *symbolize* these distinctions with practicable simplicity, the resulting alphabet would represent not merely every language, but every dialect, and even every idiosyncrasy of speech!

Here was a new object to be aimed at,—grand in its utility, worthy of all effort for the sake of science,—but apparently beyond hope of success. The Alphabetic Conferences held in London in 1854,—under the presidency of Chevalier Bunsen, the Prussian Ambassador,—and attended by the most distinguished philologists of several countries, had declared that—'it would be useless and impossible to attempt to find for each possible variety of sound a different graphic sign.' Nevertheless, these learned men might be mistaken; they certainly did not comprehend the relations of the sounds of speech as they had now been ascertained. Their Conferences were fruitless, from the avowed want of the requisite 'Physiological Basis' for a complete Alphabet. Here was the 'Basis' undoubtedly laid. The Cosmopolitan Graphic Structure might, after all, be raised. Pen, ink, and paper, cost little; 'the labour we delight in physics pain;' nil desperandum! The attempt was diligently prosecuted.

The problem was:—To construct a Scheme of Symbols, which should embody the whole classification of sounds, and make each element of speech shew in its symbol the position of its sound in the organic scale.

The adoption of letters from existing alphabets was obviously irreconcilable with the desired conformity of symbol to sound. There were six sets of purely lingual vowels to be provided for, each set consisting of three sounds, dependent on relative difference of aperture; besides which, there were corresponding sets of 'rounded,' or labio-lingual formations; making a total of thirty-six organically distinct simple VOWELS. There were also the CONSONANTS, of corresponding organic classes to the vowels, with all their nice gradations of effect dependent on the exact point of contact or friction; and there were the GLIDES allied to both sets of elements.

The consideration that all these varieties of elementary sound resulted mainly from the evolutions of a single organ—the tongue—happily suggested the idea of representing each class of elements by a SINGLE RADICAL SYMBOL; and the realization of this idea became the final object of effort.

Definiteness of aim achieved a speedy success. The result was simple

beyond hope; the MONO-SYMBOLIC idea being, as the Reader will perceive, carried out in every part of the Scheme, for vowels, consonants, and glides.

In the early part of 1864, the New System of Letters was completed, and all the hitherto undefined 'airy nothings' of human speech received each

'A local habitation and a name.'

The correlation of the Sounds and Symbols rendered the latter SELF-INTERPRETING to those who possessed the key to the symbolism, and so converted the UNIVERSAL ALPHABET, which had been the object of the designer, into a real VISIBLE SPEECH;—the latter constituting, in fact, a new Science,—adapted for the use of all mankind!

The Invention was without delay brought to the test of public experiments in the Writing of Languages. The Inventor's Sons acquired a perfect knowledge of the System in a few days, and were enabled to pronounce, at sight, the most difficult and peculiar words that could be selected from the Eastern and other Languages; involving often combinations of sound which the readers had never heard before their own organs gave them utterance.

Practical success having been thus demonstrated and certified by the Linguists who had dictated the experimental tests,* the System was forthwith offered to the British Government for publication without Copyright, as a gift to the Nation and the world: the only condition being, that the cost of casting the new Types, and communicating the Theory of the System, should be defrayed from public resources. The result may be seen in the Preface.

The entire System of Visible Speech has, before publication, been written above a score of times on various plans, with the view of securing the utmost simplicity and perspicuity in presenting its principles. It is hoped that these qualities will be manifest in the ultimate draft which is now submitted to the public. The Invention having also undergone close revision in all its details at each transcription, as well as having been made the subject of constant experiment during the years that have elapsed since its completion, is now, it is believed, perfect for its purposes, and will probably be found to require no additions or alterations, however extended its uses may become.

Among the special uses of 'Visible Speech,' the following may be indicated:—

* For a record of the experiments, see Pamphlet 'Visible Speech,—A New Fact Demonstrated.' London: Hamilton, Adams & Co.

SPECIAL USES OF THE INVENTION OF VISIBLE SPEECH.

I. The teaching of the ILLITERATE in all countries to read their Vernacular Tongue in a few days.

The certainty of accomplishing this result should incite philanthropic societies and individuals to the most widely sustained efforts for the enlightenment of the 'latent tracts' of communities. The worst vices of society are undoubtedly nurtured in *ignorance.*

II. The teaching of the BLIND to read.

The small number of radical forms, and the distinct tangibility of differences of *position* of the same form, render the Symbols of Visible Speech peculiarly adapted for this purpose.

III. The teaching of the DEAF AND DUMB to speak.

In this department, very striking results may be confidently anticipated. The Deaf and Dumb possess all the organs of speech, and only require to be directed *visibly* in their use. The *feeling* of organic action will probably be developed by practice to a keenness corresponding to that which the sense of touch acquires among the Blind.

IV. The communication of the exact sounds of FOREIGN LANGUAGES to learners in all countries.

The advantages of this facility will be experienced in connection with the Foreign Services abroad; with Geographical and other Expeditions; with Political Embassies, Christian Missions, Commerce, General Education, &c.

V. The establishment of a STANDARD of the NATIVE PRONUNCIATION of any language.

In the case of almost every language this is a desideratum, the want of which has been productive of great domestic and international inconvenience; and the supplying of this want will, of course, achieve a corresponding amount of social and scholastic benefit.

VI. The Prevention and Removal of DEFECTS and IMPEDIMENTS of Speech.

In dealing with these, 'knowledge' of the mechanisms of speech is, emphatically, 'power' of correction. Such habits should, now that these mechanisms have been plainly revealed, be easily and certainly *prevented.*

VII. The TELEGRAPHIC communication of messages in any language, through all countries, without translation.

Visible Speech does not interfere with the use of ordinary alphabets in literature, &c.; but for international purposes it may very advantageously supplant all local alphabets. Roman letters have been fully tried, and found sadly wanting in Telegraphy.

VIII. The study, comparison, and preservation of fast-disappearing DIALECTS, and the universal tracing of the AFFINITIES OF WORDS.

The Science of Etymology has been hindered by nothing more than by the want of a Universal Alphabet. Visible Speech furnishes more than this, or than scholars have hitherto dared to hope for. The relations of sounds will now need no research or elaborate disquisition, as every relation, whether organic or mechanical, will be distinctly legible in the literal Symbols themselves. The Science of Comparative Philology should be vastly advanced by this Invention.

IX. The speedy diffusion of the language of a mother country throughout the most widely separated COLONIES.

This is only one among many similar Political benefits to be derived from the New System of Letters. The acquisition, by Rulers, of the languages of their Colonial Subjects, will, of course, be facilitated in an equal degree.

X. The world-wide communication of any specific sounds with absolute uniformity; and, consequently, the possible construction and establishment of a UNIVERSAL LANGUAGE.

Without such a medium of self-interpreting letters, the establishment of a Universal Language might fairly be deemed an impossibility. By means of Visible Speech, if at all, this Dream of Philosophers will be realized. The foundation is laid, and the Linguistic Temple of Human Unity may at some time, however distant the day, be raised upon the earth.

EXPERIMENTAL APPLICATIONS OF VISIBLE SPEECH.

Since the Pamphlet was printed in which the earlier experiments in application of Visible Speech were recorded, the list of Languages from which tests have been furnished has become much more extensive. It is unnecessary to swell the bulk of this volume with fresh citations. There has been no single instance of failure in connection either with the sounds of Languages or

Dialects, or in the writing of Arbitrary peculiarities. For the sake of showing the mode in which the experiments were conducted, the following description is quoted from a letter to the 'Reader,' by Alexander J. Ellis, Esq., F.R.S. :—

"The mode of procedure was as follows: Mr Bell sent his two Sons, who were to read the writing, out of the room,—it is interesting to know that the elder, who read all the words in this case, had only had five weeks' instruction in the use of the Alphabet,—and I dictated slowly and distinctly the sounds which I wished to be written. These consisted of a few words in Latin, pronounced first as at Eton, then as in Italy, and then according to some theoretical notions of how the Latins might have uttered them. Then came some English provincialisms and affected pronunciations; the words 'how odd,' being given in several distinct ways. Suddenly German provincialisms were introduced. Then discriminations of sounds often confused, *ees*, *is'* (Polish); *eesh*, *ich* (German); *ich* (Dutch); *ich* (Swiss); *ouī*, *oui* (French); *we* (English); *wie* (German); *vie* (French). Some Arabic, some Cockney-English, with an introduced Arabic guttural, some mispronounced Spanish, and a variety of shades of vowels and diphthongs. * * * The result was perfectly satisfactory;—that is, Mr Bell wrote down my queer and purposely-exaggerated pronunciations and mispronunciations, and delicate distinctions, in such a manner that his Sons, not having heard them, so uttered them as to surprise me by the extremely correct echo of my own voice. * * * Accent, tone, drawl, brevity, indistinctness, were all reproduced with surprising accuracy. Being on the watch, I could, as it were, trace the alphabet in the lips of the readers. I think, then, that Mr Bell is justified in the somewhat bold title which he has assumed for his mode of writing—'Visible Speech.' I only hope that, for the advantage of linguists, such an alphabet may be soon made accessible, and that, for the intercourse of nations, it may be adopted generally, at least for extra-European nations, as for the Chinese dialects, and the several extremely diverse Indian languages, where such an alphabet would rapidly become a great social and political engine."

No man could be better qualified to form a correct judgement in reference to these experiments than the eminent Author of 'The Essentials of Phonetics;' and it was a confidence only due to Mr Ellis's disinterestedness, and promptitude in recognising the merits of Visible Speech, which led the Author to invite that Gentleman, at a later period, to inspect the Theoretical details of the Invention.

Mr Ellis's second letter to the 'Reader,' (August 5th, 1865,) descriptive of what he now knew theoretically as well as practically, is subjoined in extenso:—

"In your number for September 3, 1864, vol. iv., page 303, you gave insertion to a letter which I addressed to you concerning Mr Melville Bell's new system of expressing speech-sounds by written symbols. I had then been favoured with a private demonstration of its capabilities, which I had tested to the best of my power; and I was able to give a most satisfactory report to that extent. But I did not know the forms of the letters, or what each individual letter represented, or how they were to be combined, or what was the theory on which the extraordinary results I witnessed was based; and I was, therefore, obliged to qualify my opinion. Mr Melville Bell and his two Sons have now been kind enough to devote several hours to explaining to me thoroughly the whole phonetic theory and plan of symbolization, and to read and exhibit on paper before me examples of its use, sufficiently numerous to enable me to form a complete judgement of its powers and merits. I take the liberty, therefore, in the interest of science, to complete the information I gave you, so far as I am at liberty to do. I may add, that I have no sort of connexion, pecuniary or personal, with Mr Melville Bell's scheme; that I have not been of the slightest assistance to him in its construction; and that persons might even rather suspect me of wishing not to forward a scheme which will, I believe and hope, thoroughly supersede one on which I have laboured for many years, and expended much money. My impressions in favour of Mr Bell's scheme are so strong, that it is necessary for me to guard against any suspicion of being biassed in giving them expression.

"As I write I have a full and distinct recollection of the labours of Amman *(Surdus Loquens*, 1692; *Dissertatio de Loquelâ*, 1700); De Kempelen *(Le Mécanisme de la Parole*, 1791); Johannes Müller *(Handbuch der Physiologie*, book iv., sec. 3., *Von der Stimme und Sprache*, German, 1834, French, by Jourdan and Littré, 1851); K. M. Rapp *(Versuch einer Physiologie der Sprache*, 4 vols., 1836—1841); C. R. Lepsius *(Standard Alphabet*, second English edition, 1863); E. Brücke *(Grundzüge der Physiologie und Systematik der Sprachlaute*, 1856); S. S. Haldeman *(Analytic Orthography*, 1860); Max Müller *(Proposals for a Missionary Alphabet*, prefixed to his *Survey of Languages*, 1855; *Physiological Alphabet*, in his *Lecturcs on the Science of Language*, series ii., lecture 3, 1864). To these I may add my own works *(The Alphabet of Nature*, 1845;

The Essentials of Phonetics, 1848; *Universal Writing and Printing*, 1856); together with a host of other works of more or less pretension and value, which it would be too long to enumerate. The above treatises contain, perhaps, a complete account of the present state of phonetical knowledge, so far as has been published.

"Now, it is with this full and distinct recollection of works, which I have not only read, but studied, many of them with great care and attention, that I feel called upon to declare that, until Mr Melville Bell unfolded to me his careful, elaborate, yet simple and complete system, I had no knowledge of alphabetics as a science Much had been done. The mechanism and physiology of voice-sounds had been carefully and profoundly studied. Excellent and elaborate attempts at analyzing speech-sounds had been made. Various alphabets, local and universal, had been planned. Contributions to the philosophy of alphabetics of great value, indispensable observations and experiments, had been recorded and many more are doubtless required. But alphabetics as a science, so far as I have been able to ascertain—and I have looked for it far and wide—did not exist. We did not know what elementary sounds or modifications of sound should be expressed, and the art of expressing such as had been pretty generally received was in a state of the utmost confusion. I should be loth to say that Mr Melville Bell's scientific system of alphabetics admits of no improvement. It would be strange if it did not. But it has all the present appearance, on the one hand, of satisfying the wants of science, and, on the other, of fulfilling the demands of practice.

"Mr Melville Bell, in forming an alphabet, rejected all existing alphabets. They were all formed on very imperfect knowledge, or superficial observation. He applied himself directly to the organs of speech, with which his long practice as a corrector of the defects of utterance had rendered him familiar in all their relations. The different forms of the glottis, the different modes of driving the air from the lungs and the passages it traversed, the various ways of altering or modifying the positions assumed by the organs of speech, first engaged his attention; and the skill with which he has hit upon the general modifications, is one of the most remarkable parts of his system, leading to a series of diacritic symbols of universal applicability, giving an almost unlimited power of expressing shades of sound and peculiarities of utterance, without loading the memory of the reader with an impossible variety of literal forms. Next came the consideration of the vowels, and their treatment is at once complete and original.

The size and shape of the aperture allowed for the passage of vocalized breath forms the basis of the arrangement, and the relations of the apertures thus formed, with their modifications at either extremity, labial and pharyngal, give a philosophical and, indeed, musical scheme of the relations of the vowel sounds. The power thus obtained of showing, by the very form of the symbol, how to produce the vowel sound, is really astonishing to those whose study of vowel sounds has shown them the extreme difficulty of conceiving the method of uttering or imitating them when spoken. So perfect is the present arrangement, that a simple name is given to each vowel heard, depending entirely on the shape and modification of the wind passage, by which its power is conveyed with ease to those who have been properly instructed in the meaning of the words employed. The numerous examples which Mr Melville Bell and his Sons gave me of the facility with which delicate distinctions in English pronunciation—as, for example, between the vowels in *shun* and men*tion*, *nest* and good*ness*; princip*le*, princip*al*, and princip*al*ity—and difficult Scotch and Irish dialectic vowels, could be symbolized and understood, were most interesting and satisfactory. No approach to such a perfection of analysis and symbolization of the vowels has yet fallen under my notice. Lastly came the consonants; and here, too, although they have been generally much better understood than the vowels, the treatment is very original, and apparently exhaustive. I need only allude to the method of marking the position and shape of the tongue with respect to the palate, and the general modifications whereby the great variety of consonants thus formed is reduced to a rational and intelligible order. Nor must I omit to mention the mode of indicating glide sounds, during which the organs change their position, and which, therefore, assume a kind of middle place between consonants and vowels.

"As it would be impossible to give illustrations, the above general remarks must suffice as an outline of the theory. To those who endeavour to pick up conceptions of speech-sounds from the confused accounts of ordinary writers (which are certainly sufficient to drive one to despair by their vagueness and figurative language, differing for almost each country and each traveller or grammarian), such a theory may seem terribly difficult. But treated practically, by one who thoroughly understands it, it will be found extremely easy. There is nothing vague, nothing figurative. Each symbol, and each part of a symbol, has a meaning, and contains a direction for utterance. *They are words of command, which any raw recruit can obey after proper drilling.* When an

Englisman talks of hard and soft *c*, he has a meaning, no doubt; but it is very different from what an Italian or Spaniard would understand. What does a Saxon mean by *hard* and *soft*, when he calls *p* hard, and *b* soft? Something very different. What are the *thick* and *thin*, *heavy* and *light* vowels or consonants of different nations? These words evidently do not tell any one what is to be done. No one could he trained by them. But they have served to pervert men's minds, and render them unable to describe or understand a real description of sound. A well-known Orientalist, the other day, was surprised that Mr Bell could not write a sound from description, which the describer could not himself pronounce; and was dissatisfied by having his own utterance of another sound photographed, when he wished to hear the sound of his conception. All this arises from extremely imperfect knowledge of certain landmarks of sound which Mr Bell's system, when properly taught, at once establishes. But it will not teach itself; owing in part to this prevailing ignorance, and in part to varieties of pronunciation affecting the key-words. If Mr Bell were to publish his system as a book, it might be doomed to repose on the same shelf with the *Real Character* of Bishop Wilkins (which also contains an admirable analysis of speech-sounds). Mr Bell can only teach it by transfusing it into living organisms which will give his written symbols notion and meaning. Would the best book on military manœuvres, thrown on the world, make men mass together and march and countermarch with precision and certainty? It could at most but incite a few minds to drill the multitude. But how inefficiently would they do it, in comparison with those who had themselves been drilled and directed by the man who conceived the manœuvres! It is the same in the practice of music, drawing, sculpture, or any mechanical manipulation. It cannot be described. it must be taught, shown, drilled into the pupil, to whom the book only serves to recall the master. Hence, if the world will enjoy the benefit, the great scientific and practical benefit, of Mr Melville Bell's discovery, it must place him in a position to communicate it to proper teachers, by whom it may be conveyed in an ever-widening circle. It is not a case in which a man can do this for himself, without ample, independent means; and even then he would have little chance of success, if the importance of his mission did not receive a public recognition. For this reason, Mr Melville Bell appeals to the Government of the country; and his appeal should be backed on the same principle which induced France to give Daguerre a pension for his discovery. The benefit is one for

mankind, which cannot sufficiently reward the individual; and the benefit may therefore be lost by death, if not secured at once.

"Allow me to say a few words respecting the mechanical arrangements of the alphabet. When I first turned my attention to inventing letters, I learned 'to work at case and press,' that I might know what would or what would not, be practicable. Mr Melville Bell has been, perhaps, too anxious to reduce the number of his symbols. He requires thirty-nine distinct types, of which many, having a perfectly square face (as an *m*), can be used in four positions (as *m ɯ* ⁑ ⁑), giving four distinct symbols. This renders certain typographical arrangements necessary that, I think, would be best avoided. Such a defect, if it be really a defect, is, however, a small matter of detail, which is easily arranged, and could be at once overcome by increasing the number of types.* They would even then not be too numerous. The shapes of his letters are not founded on those of any existing alphabet, although a few of them accidentally recall some of our letters. They have direct reference to the positions of the organs of speech, and thus can be read at sight into the words of command which the organs have been drilled to obey. By a happy contrivance, the vowels have such a remarkably different appearance from the consonants, that they strike the eye at once, and hence determine the number of syllables of which the word consists. Mr Bell considers that the forms of the letters would be easy for the blind to recognise by touch; but of this I am no judge. Their great peculiarity is, that each letter has its genus immediately marked upon it, by its general contour, and its species by the detail of the contour; its varieties by diacritics of peculiar kinds. Thus we see at once that the sounds of *t*, *d*, are of the same genus, and that the sounds of *p*, *b*, are also of one genus. Moreover, we see that the specific distinction between *t*, *d*, is the same as the specific distinction between *p*, *b*,—a fact quite obscured in our ordinary letters, although also shown thus far (and somewhat further, but by no means consistently) in Mr I. Pitman's Phonography. But again, to *t*, *d*, are related *s*, *z*, and also Welsh *ll*, and *l*; and these relations are again shown in type, the specific differences being

* The difficulty alluded to by Mr Ellis has been obviated in the typography of the system as now arranged. The vowels were originally written with lines *ascending* beyond the consonants, and the spaces over the square letters were filled with blank types. The alphabet as shown in the present work consists of 'capital' letters; the 'lower-case' alphabet (with ascending and *descending* vowel-lines) is now obtained, without blank types, by simply casting the consonants on oblong instead of square bodies. This method adds 12 types to the number employed in the 'capital' alphabet. Lithographic illustrations of the 'lower-case' alphabet will be found at the end of this volume.

the same as before, and shown in the same way. I can obviously only allude to the simplest and best understood relations, but this may be sufficient to show the principle. The specific difference between these pairs is the presence or absence of vocalized breath; and the specific mark of difference is derived from the *sign* for 'the natural vowel,' which is again derived from the form of the glottis necessary for vocalizing breath; and thus the whole system is bound together by a philosophical and scientific chain.

"How the work of the missionary and philologist would be facilitated by the use of such an alphabet—which at once enables them to exhibit sounds that no existing alphabet can even vaguely imitate, and to show their relations to one another at a glance, and thus exhibit the relations of languages now forcibly concealed by differences of alphabetic character, or by different usage of the same alphabetic character—I need scarcely indicate. Leaving out of consideration, then, what may be naturally considered the first practical and scientific applications of such a mighty instrument as lies ready to be used when we call it from its obscurity, its immediate home uses would be of great educational value. If the teachers in our schools were drilled in the use of such an alphabet, even only to the extent of European sounds, they could correct all mispronunciations; they could overcome, to a great extent, all natural defects of utterance —as stammering, stuttering, and the like; and they could prepare their pupils to pronounce foreign languages in a manner that would not so seriously offend the native's ear as our present "Stratford atte Bowe scole" fashion. Moreover, without attempting to alter the established orthography of any country (leaving that to the wisdom of our descendants, which it would be hard to suppose less than that of our ancestors, who *did* change their orthography and alphabet), a sufficient number of books in Mr Bell's alphabet (it is without a name,—why not *le bel alphabet*?) might be published, being reprints of classical works readily obtained in the usual alphabet, to render the acquisition of the pronunciation of our own or any Continental tongue easy and exact. It is a simple statement of fact to say that no system of marking our pronunciation which has hitherto been adopted (not excepting Walker's, Smart's, Worcester's, or the phonetic systems adopted by myself, or subsequently in America, and still more lately in the presumed improvements by Mr I. Pitman) has succeeded in marking the extent of national peculiarities of English speech, to the accuracy possible in Mr Bell's system.

"I am afraid my language may seem exaggerated, and yet I have

endeavoured to moderate my tone, and have purposely abstained from giving full expression to the high satisfaction and pleasure which I have derived from my insight into the theory and practice of Mr Melville Bell's 'Visible Speech,' as it is rightly named."

The following Editorial article from the "Athenæum" of July 15th, 1865, was also founded on an examination of the Theory of the System :—

"Mr Alexander Melville Bell, who has for many years attended to the removal of defects in pronunciation, produces a method of writing sounds: this method is submitted to the severest tests with perfect success. It consists in picturing by totally new symbols the action of the several organs of speech, tongue, lips, teeth, &c. Each one of the symbols is a direction to do something : so that if the user of it had forgotten the sound it represents, he would be taught it again by merely following directions. The symbols, of course, represent the most elementary actions of the organs: put together, they produce compounds. A full sneeze, for example, is a complex operation: it comes among what are called inarticulate sounds; but Mr Bell writes it down, and, for aught we know, could undertake to furnish every member of the House of Commons with a symbol representative of his own particular sneeze, as distinguished from those of all his colleagues.

"We, and many others, have seen this method tested in the following way.— Mr Bell sends his two Sons out of the room, and then invites the company to make words in any language, pronounced rightly or wrongly, and sounds of any kind, no matter how absurd or original: for it is the success of this method that whatever the organs of speech can do, the new alphabet can record. Mr Bell tries each sound himself, until the proposer admits that he has got it: he then writes it down. After a score of such attempts have been recorded, the young gentlemen are recalled, and they forthwith read what is presented to them, reproducing to a nicety, amidst general laughter and astonishment, all the queer Babelisms which a grave party of philologists have strained their muscles to invent. The original symbols, when read sound after sound, would make a Christian fancy himself in the Zoological Gardens.

"The utility of such a method is obvious: it is clearly one of those steps of which people admit the utility so long as they can deny the practicability; and

then, when obliged to admit the practicability, they deny the utility. Mr Bell has formed a wide opinion of the range of application of his invention. He may, or may not, be fully justified: but every one can see a great deal of what he sees. To communicate through the telegraph by pure sounds, independently of meaning, so that Arabic or Chinese may travel from a clerk who knows not a word, to another just as unlearned as himself: to teach the dumb how to speak by instructing them in the actual use of their organs: to take down the sounds of foreign languages, especially those of savages, and to transmit them home: to learn how to pronounce a foreign language by interlinear use of the alphabet of sounds:—will be a very pretty instalment. And while this is being gained the rest may be discussed.

"Mr Bell comes forward with a petition to the Government. He asks just this —that the nation will be at the expense of casting his types and circulating his method; also that he may be enabled to give to a sufficient number the requisite oral instruction. He submits that if he should be obliged to do all this for himself, his system will be freely given to all the rest of the world, but restricted within the British empire, by the action of the law of copyright. We sincerely hope that he will be taken up, either by the Government or by the part of the public especially concerned. To us it seems that the Missionary Societies alone would find it worth their while to bear the whole expense. But we should best like to see the Crown forward in putting before the world—after still further and sharper testing, of course—a discovery which, if it be what we cannot doubt it is, must be called the final victory over a difficulty as old as written language, and an obstacle which has seemed to inhere in the nature of writing itself.

"This system was perfectly completed in April 1864. As long ago as 1849, Mr Bell published a work in which he said, 'It would really be a matter of but little difficulty to reconstruct our alphabet, and furnish it with invariable marks for every appreciable variety of vocal and articulate sound.' But when he came to the attempt, he found some lions in the path, which, as is the nature of that sort of lion, did not show themselves until the huntsman came close to their dens. The monsters were successfully attacked: but they took a long time to conquer. That they *are* conquered, has been seen.

"All that has hitherto been tried is the attempt to put the letters of a language or languages into symbols. We remember a work of the last century which professed to symbolize accent, rythm, and cadence. A great many efforts have been made to spell words: but the system before us *spells spelling*."

If the Author has to complain of the *insouciance* of Government Officials in reference to his proposition for a free promulgation of 'Visible Speech,' he has no cause for any other feeling than that of the highest satisfaction on account of the interest uniformly shown by the Press; as well as by all who have witnessed the experiments in application of the Invention. Among the latter, he desires to mention the name of Professor S. S. Haldeman (of Columbia, Pennsylvania, U.S.)—Author of the Trevelyan Prize Essay on 'Analytic Orthography'—whose warm appreciation deserves this special acknowledgement.

A distinguished Bohemian Linguist, CENEK SERCL,* who, while still a young man, has rivalled, if not surpassed, the renowned achievements of Cardinal Mezzofanti, has favoured the Author with the following letter, which he has much pleasure in presenting here:

"37 Museum Street, 6th September 1866.

"At the request of Mr Bell, I dictated to him many of the most difficult words of the Bohemian language, which were afterwards read by his Son, who having been absent at the time of dictation, did not hear me pronounce them, but nevertheless pronounced them in a very satisfactory manner, and extremely intelligibly. I also selected the most difficult words in almost all European, and five Asiatic languages, which were then written down by Mr Bell according to his system; his Son having been again called in, read them most correctly, pronounced every syllable very distinctly, and put the right accent on every word. Though I am not acquainted with the particulars of this truly remarkable system, yet I dare say, that as far as I know, there does not exist any system, nor did, which would express the most different peculiarities of human speeeh and mode of utterance, in a manner so satisfactory as Mr Bell's system really does. I am therefore happy to state, that in my opinion this system, as being perfectly original, and, as far as outward appearance goes, most simple indeed, is of the highest practical value; the more so at a time when the idea of a general alphabet is becoming a question of the highest importance.

"CENEK SERCL."

(* Pronounced ᴅᴜᴛᴛᴏᴛᴀᴛᴀ ᴜᴛᴏᴅᴏᴎᴏᴜᴛ.)

TABULAR EXPOSITION

OF

VISIBLE SPEECH.

COMPLETE TABLE OF RADICAL SYMBOLS.

The fundamental principle of Visible Speech is, that all Relations of Sound are symbolized by Relations of Form. Each organ and each mode of organic action concerned in the production or modification of sound, has its appropriate Symbol; and all Sounds of the same nature produced at different parts of the mouth, are represented by a Single Symbol turned in a direction corresponding to the organic position.

The following are all the Radical Symbols:—

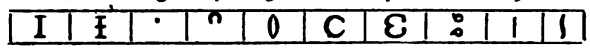
1	O	The Throat open. [Aspirate.]	
2*	0	" " contracted. [Whisper.]	
3	X	" " closed. [Glottal Catch.]	
4*	I	" " sounding. [Voice.]	The Stems of all Vowels.
5*	Ɨ	" " " and the lips 'rounded.'	
6*	C	Part of the Mouth contracted.	The Stems of all Consonants.
7*	Ɛ	" " " divided.	
8*	ʃ	The Nasal Valve open. [Soft Palate.]	
9*	·	Vowel Definer.	Joined to 4 and 5.
10*	∩	Wide Vowel Definer.	
11*	|	Shutter. Joined to 6.	
12*	ᵕ̈	Mixer. Joined to 6 and 7.	
13	ʃ	Consonant Definer.	
14	V	Force Director.	
15	>	Breath Director.	
16	c	Tongue Director.	
17	·	Stopper.	
18	ǁ	Divider.	
19	ʂ	Vibrator.	
20	ɬ	Holder, or Long.	
21	‹	Abrupt.	
22	›	Hiatus.	
23	o	Link.	
24	ˈ	Accent.	
25	-	Modulators.	
26	´		
27	`		
28	˹		

* Of these Symbols the Ten marked * make up all the Vowel and Consonant Letters, as shown in the next Table.

THE TEN RADICAL SYMBOLS,

FROM WHICH ALL VOWEL AND CONSONANT LETTERS ARE FORMED.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.



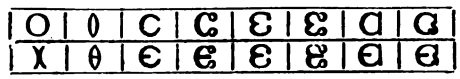
EXAMPLES OF LETTER-COMBINATIONS.

Letters.		*Letters.*	
	&c., combining 1 and 3.		combining 6, 8, and 1.
	&c., " 1 " 4.		" 6 and 9.
	&c., " 2 " 3.		" 6, 9, and 1.
	&c., " 2 " 4.		" 6, 9, and 10.
	" 5 " 1.		" 6, 9, 10, and 1.
	" 5 " 10.		" 7 and 1.
	" 1 " 6.		" 7 and 8.
	" 2 " 6.		" 7, 8, and 1.
	" 6 " 8.		

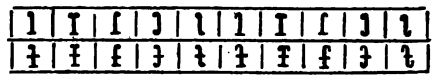
COMPLETE ALPHABET OF TYPES.

CAPITALS.

Consonants.—16 in number.



Vowels.—20 in number.

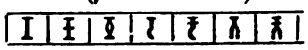


'LOWER CASE' LETTERS (not employed in this Work.)

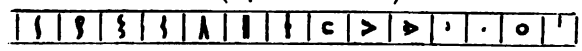
Consonants,
(28 in number.)
[Narrower and smaller letters of the *same* shapes as the Capitals.]

Vowels,
(20 in number.)
[Letters of the *same* shapes as the Capitals, but ascending or descending beyond the Consonants.]

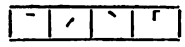
GLIDES,
(7 in number.)



MODIFIERS.
(14 in number.)



TONES.—(4 in number.)



All the Types are *reversible*, to show kindred sounds of different organic formation.
The Letters are to be learned by their *names* independently of sounds.
The names of the Letters describe the organic positions which *produce* the sounds.
The following Table shows the name of each letter :—

COMPLETE TABLE OF LETTERS,—WITH THEIR NAMES.

Consonants.

	Organic Name.	Mixed.	Divided.	Mixed Divided.	Shut.	Nasal.
Aspirate,	O					
Throat,	0				X	
Throat Voice,	θ					
Back,	C	ꞓ	ꞓ	ꞓ	ꞓ	ꞓ
Back Voice,	Є	Є	Є	Є	Є	Є
Front,	ᑎ	ᑎ	ᑎ	ᑎ	ᑎ	ᑎ
Front Voice,	ᑎ	ᑎ	ᑎ	ᑎ	ᑎ	ᑎ
Point,	ᑌ	ᑌ	ᑌ	ᑌ	ᑌ	ᑌ
Point Voice,	ᑌ	ᑌ	ᑌ	ᑌ	ᑌ	ᑌ
Lip,	ᑐ	ᑐ	ᑐ	ᑐ	ᑐ	ᑐ
Lip Voice,	ᑐ	ᑐ	ᑐ	ᑐ	ᑐ	ᑐ

Vowels.

	Back.	Back Wide.	Mixed.	Mixed Wide.	Front.	Front Wide.
High,	ꞁ	ꞁ	ꞁ	ꞁ	ꞁ	ꞁ
Mid,	ꞁ	ꞁ	ꞁ	ꞁ	ꞁ	ꞁ
Low,	ꞁ	ꞁ	ꞁ	ꞁ	ꞁ	ꞁ
High Round,	ꞁ	ꞁ	ꞁ	ꞁ	ꞁ	ꞁ
Mid Round,	ꞁ	ꞁ	ꞁ	ꞁ	ꞁ	ꞁ
Low Round,	ꞁ	ꞁ	ꞁ	ꞁ	ꞁ	ꞁ

Glides.

Breath.	Voice.	Round.	Throat.	Back.	Front.	Point.	Lip.	Round. Back.	Round. Front.	Round. Point.	Round. Lip.
<	I	ꞁ	ꞁ	ꞁ	ꞁ	ꞁ	ꞁ	ꞁ	ꞁ	ꞁ	ꞁ

Modifiers and Tones.

ʃ	Nasal.	ʂ	Trilled.	◄	Suction Stopped.	ʻ	Abrupt.	–	Level Tone.
ʃ	Nasal Mixed.	ǁ	Divided.	►	Emission Stopped.	ʼ	Hiatus.	/	Rising Tone.
ʃ	Inner.	c	Inverted. [To Back.]	o	Link.	⊖	Whistle.	\	Falling Tone.
ʃ	Outer.	ɔ	Protruded. [To Lip.]	ˈ	Accent.	⊖	Voiced Whistle.	v	Compound Rise.
ʌ	Close.	·	Stopped.	ˌ	Emphasis.	˹	High Key.	ʌ	Compound Fall.
ɣ	Open.	<	Suction.	ǀ	Holder.	˺	Low Key.		

ORDER OF NOMENCLATURE.

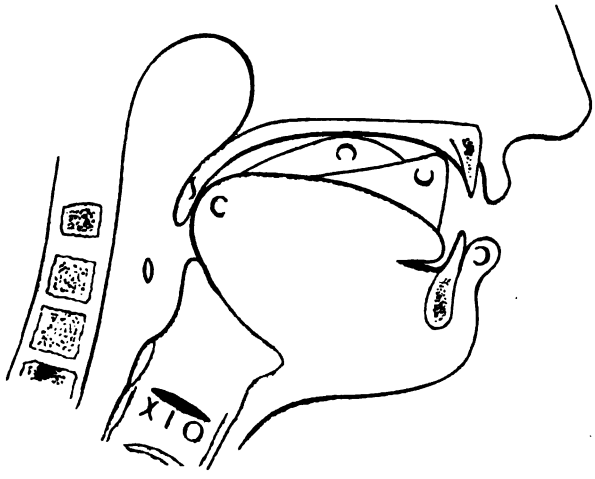
CONSONANTS :—Organ, first ; 'Voice' last. Thus : Back C ; Back-mixed, voice Є ; Front-divided, voice ᑎ ; Front-mixed-divided, voice ᑎ ; Point-shut ᑌ ; Lip-shut, voice ᑐ ; Point-nasal ᑌ ; &c.

VOWELS :—Elevation, first ; 'Round' last. Thus : High-back ꞁ ; Mid-back, wide ꞁ ; Low-mixed ꞁ ; High-front, Round ꞁ ; Mid-mixed-wide, Round ꞁ ; &c.

GLIDES :—'Glide' last. Thus : Breath-glide > ; Voice-glide, I ; Lip Round-glide ꞁ ; &c.

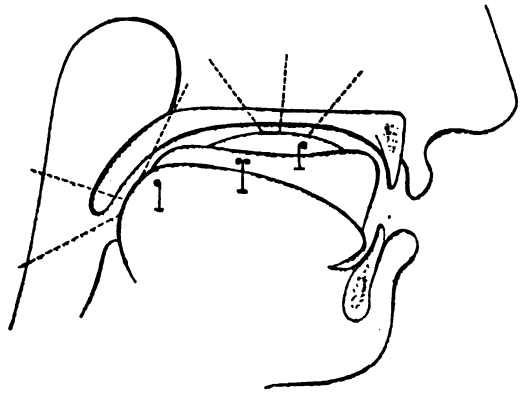
DIAGRAMS SHOWING THE RELATION OF THE PRIMARY ORGANIC SYMBOLS TO THE ORGANS.

CONSONANTS.



X Glottis closed, (catch.)
I " narrow, (voice.)
O " open, (aspirate.)
0 Super-Glottal Passage contracted, (whisper.)
ſ Soft Palate depressed, (nasal.)
C Back of Tongue, (contracting oral passage.)
C Front of do. (do.)
C Point of do. (do.)
C Lips, (do.)

VOWELS.



ɪ Back of Tongue high.
ɪ Back and Front do. do.
ɪ Front do. do.

[The dotted lines show the 'high,' 'mid,' and 'low' positions of the tongue, as subsequently explained.]

EXPLANATORY TABLE OF SYMBOLS FOR CONSONANTS AND GLIDES.

Consonants.

	Modifying. Breath.	Modifying. Voice.	
1.			Throat-passage contracted.
2.			Back of tongue contracting mouth-passage.
3.			" dividing "
4.			" closing "
5.			" " " with nasal emission.
6.			Front of tongue contracting "
7.			" dividing "
8.			" closing "
9.			" " " with nasal emission.
10.			Point of tongue contracting "
11.			" dividing "
12.			" closing "
13.			" " " with nasal emission.
14.			Lips contracting mouth-passage.
15.			" dividing "
16.			" closing "
17.			" " " with nasal emission.
18.			Back position ( ) modified by partial effect of
19.			Front " () " "
20.			Point " () " "
21.			Lip " ( ) " "
22.			Divided emission with the organs in the position
23.			" " "
24.			" " "
25.			" " "

Glides, or Transitional Semi-Vowels.

1.		Partial effect of with vowel quality predominating.
2.		" " "
3.		" " "
4.		" " "
5.		" " "
6.		" " "
7.		" " "
8.		" " "
9.		" " "

Modifiers.

Inner position.	Applicable to any of the Consonants.	Inverted.	Applicable to Point Consonants.
Outer "		Protruded.	

EXPLANATORY TABLE OF SYMBOLS FOR VOWEL CONFIGURATIONS.

Explanation.

	Primary.	Wide.(1)	
1.	ɭ	ɭ	Back of tongue(2) high and retracted.
2.	ɟ	ɟ	" retracted at a middle elevation.
3.	ʃ	ʃ	" low and retracted.
4.	ɪ	ɪ	Back and front(3) of tongue high.
5.	ɻ	ɻ	" " at a middle elevation.
6.	ɪ	ɪ	" " low.
7.	ɾ	ɾ	Front of tongue(4) high and advanced.
8.	ɾ	ɾ	" advanced at a middle elevation.
9.	ɾ	ɾ	" low and advanced.
10.	ɨ	ɨ	No. 1, rounded, (lip aperture narrow.)
11.	ɘ	ɘ	" 2, " (" mid.)
12.	ɜ	ɜ	" 3, " (" broad.)
13.	ɨ	ɨ	" 4, " (" narrow.)
14.	ɤ	ɤ	" 5, " (" mid.)
15.	ɜ	ɜ	" 6, " (" broad.)
16.	ɐ	ɐ	" 7, " (" narrow.)
17.	ɐ	ɐ	" 8, " (" mid.)
18.	ɐ	ɐ	" 9, " (" broad.)

MODIFIERS.

Applicable to all Vowels

˜ Nasalized.	ʿ Abrupt.
˞ " and gutturalized.	˙ Stopped in the throat.
ː Long.	ˈ Accented.

(1.) The 'Primary' and the 'Wide' Vowels have the same oral configurations; but for the 'Wide' sounds, the voice channel from the throat to the configurative aperture is expanded.

(2.) For 'Back' Vowels, the back of the tongue forms a narrow aperture with the soft palate, or (for the 'low-back') with the pharynx.

(3.) For 'Mixed' Vowels, the back and the front of the tongue both modify the voice-channel: the back of the tongue does not descend below its 'mid' position for the lowest of the 'Mixed' series.

(4.) For 'Front' Vowels, the front of the tongue forms a narrow aperture between it and the roof of the mouth—a free passage being left between the back of the tongue and the soft palate. From the 'low-back' to the 'high-front' position, the configurative aperture progressively advances, by the nine stages ɟ ʃ ɭ ɻ ɪ ɾ ɾ ɾ ɾ, as illustrated in a subsequent Diagram.

TABLE SHOWING THE MUTUAL RELATIONS OF SYMBOLS AND SOUNDS,

By which, a few Sounds being known, other Sounds may be deduced from their Symbols.

CONSONANTS AND GLIDES.

As is to so are to , to , to , to , &c.

" " " " , " , and to .

" " " " , " , to , &c.

" " " " , " , " , &c.

" " " " , " , " , &c.

" " " " , " , " , &c.

" " " " , " , to , &c.

VOWELS.

As is to so are to , to , to , to , &c.

" " " " , " , " , &c.

" " " " , " , " , &c.

" " " " , " , " , &c.

The relations of the Vowels are fully exhibited in the following arrangement.*

A	B	C	D

As Class B is to Class A, so is Class D to Class C.
" C " A, " D " B.

As are the Numbers, so are the Sounds in each Class. Thus:

Vertical Relation.	*Horizontal Relation.*
2 is intermediate to 1 and 3.	4 is intermediate to 1 and 7.
5 " 4 " 6.	5 " 2 " 8.
8 " 7 " 9.	6 " 3 " 9.

Diagonal Relation.

5 is intermediate to 1 and 9.
5 " 3 " 7.

* The practical application of these Relations in learning foreign sounds is shown in a subsequent section.

THEORETICAL EXPLANATIONS,

EXERCISES, &c.

THEORETICAL EXPLANATIONS AND EXERCISES.

The preceding Tables and Diagrams are intended to convey a general knowledge of the *principle* of 'Visible Speech,' for the benefit of cursory Readers.

In explaining the Symbols in detail, we take first those which represent the elements of Interjectional or Inarticulate utterance.

RUDIMENTAL SYMBOLS.

	Symbols.	Names.	*Explanation.*
1.	O	Aspirate.	Emission of breath with the throat wide (H.)
2.	I	Voice.	The glottis narrow and sounding. (Vowel.)
3.	0	Throat.	Emission of breath with the throat contracted, (whisper.)
4.	θ	Throat-Voice.	Emission of voice with the throat contracted, (hoarse murmur.)
5.	X	Catch.	The glottis closed [and opened,] (a cough.)
6.	ʃ	Nasal.	The nasal valve open.
7.	ʃ	Nasal-Mixed.	The nasal valve open and the throat contracted.
8.	ʕ	Trill.	Vibration of the organ symbolized.
9.	ʌ	Close.	Organic closeness or upward pressure, causing percussive emission.
10.	ʏ	Open.	Organic openness with softness of emission.
11.	<	Suction.	Inward action of the air.
12.	>	Breath-Glide.	Transitional emission of breath from the symbolized configuration.
13.	·	Stop.	A stop in the symbolized configuration, with cessation of the impulse of utterance. (An unfinished element.)
14.	ˌ	Hiatus.	The preceding element finished independently of the following.
15.	˓	Abrupt.	Shorter than ordinary 'short quantity.'
16.	ˈ	Long or 'Holder.'	The symbolized configuration 'held,' with the impulse of utterance continued. (Long 'quantity.')
17.	ˈ	Accent.	Impulse on the succeeding element or syllable.

The numbers attached to the Symbols are merely for convenience of reference to the subsequent explanatory paragraphs. The natural order of the Symbols is shown in the Alphabetic Tables, page 37.

THE ORGANIC RELATIONS OF THE RUDIMENTAL SYMBOLS.

The brief explanations of the Symbols given in the preceding Table are supplemented by the following more complete descriptions, which explain the rationale of the symbolization. The latter should be thoroughly understood by those who study the Science of Universal Alphabetics for the purpose of teaching, or with the view of symbolizing languages at hearing.

Symbols.

1. O When the glottis and the super-glottal passage are perfectly open, the breath creates no sound in its emission. A moderate degree of expulsiveness to render the 'aspiration' audible is implied in O. The symbol is pictorial of the expanded breath-channel in the throat.

2. I When the glottis is contracted to a narrow chink, the breath in passing sets the edges of the orifice—the 'vocal ligaments'—in vibration, and creates sonorous 'voice.' This vocalizing condition of the glottis is pictured in the Symbol.

3. () When the glottis is open and the super-glottal passage is contracted, the breath creates in the latter the non-sonorous rustling or friction which is called 'whisper.' The relative expansion of the throat-channel for O and () is pictured in the Symbols.

   The organic effect of () will be understood by whispering a 'voiced-consonant,' such as V. The result is clearly different from the sound of the non-vocal consonant of corresponding oral formation (F.) For the former, the fricativeness of the breath is audible from the *throat*, through the oral configuration; for the latter, the breath-friction is audible only from the lip.

4. θ The symbol θ is a compound of () and I, and denotes whisper and voice heard simultaneously;—a vocal murmur modified by breath-friction in the super-glottal passage.

5. X Symbol X pictures the conjoined edges of the glottis, and denotes the 'catch' of the breath which is heard (with violence of percussion) in a cough. The linguistic effect of X is softer, but distinctly percussive, when an aspiration or a vocal sound follows the 'catch.'

Symbols.

6. ʃ The passage of the nostrils is governed by the soft palate, which acts the part of a valve. When there is no nasal emission, the upper surface of the soft palate presses against the inner end of the nostrils. See Diagram, page 13. Symbol ʃ,—which is pictorial of the pendulous palate or its narrow prolongation, the uvula,—denotes that the soft palate is depressed, so that the breath passes into the nostrils as well as into the mouth.

7. ʕ Symbol ʕ is a compound of ʃ and 0, and denotes guttural contraction with nasality, as heard in the French sounds *in*, *on*, &c. In these elements there is a gliding semi-consonant effect in the throat as well as nasal modification.

8. ʒ Symbol ʒ denotes a loose *vibration* or quiver of the organ to which the symbol applies. Thus the tongue vibrates against the front of the palate in forming the Scotch or Spanish R; the uvula vibrates against the back of the tongue in producing the French R 'grasséyé,' or the Northumbrian 'burr;' the lateral edges of the tongue vibrate in forming a close variety of L; the lips vibrate when they are relaxed and closely approximated; and in the same way the edges of the throat-passage vibrate, with a 'growling' effect, when the current of breath is intercepted by sufficiently close but loose approximation. Symbol ʒ thus refers to the element after which it is written; as:

O ʒ a flutter of the breath.
I ʒ a quiver of the voice.
0 ʒ throat vibration:—a 'gruff' whisper.
θ ʒ hoarse vibratory murmur:—'growling.'

9. ʌ
10. ʏ Symbols ʌ and ʏ, by themselves, refer to the aperture of the mouth as affected by the close (ʌ) or open (ʏ) position of the jaws. Following other Symbols, ʌ denotes configurative compression, with consequent percussion on leaving the configuration; and ʏ denotes configurative openness or organic laxity. Thus:

Oʌ An exhaustive aspiration from upward pressure of the diaphragm;—a wheeze.

Symbols.

OY A gentle inaudible aspiration.

XΛ Glottal closure with distension of the larynx from pressure on the confined breath, and percussive emission on opening the passage ;—a cough.

11. < Whisper or voice may be produced by air going inwards (<) or by
12. > breath coming out (>). All symbols except < and · imply emission. Symbol > is used to denote a transitional emission from the symbolized configuration in passing from one position to another. The effect is different from the throat-aspiration, O. Thus, from the 'shut' position of the glottis (X) we may either open sharply upon an utterance of voice (XI) or we may *ease off the pressure* of the 'catch' by interpolating a 'breath-glide' (X>I).

13. · Symbol · signifies that the organic separation or recoil from any symbolized position—which is always implied in final elements when the 'stop' is not written—does not take place. Thus X· is an unfinished 'catch,' in forming which the impulse ceases with the *closure* of the glottis.

The effect of organic 'stop' is implied between elements in verbal combinations, such as *tl* in *outlaw*, *td* in *outdo*, &c.; where, necessarily, the *t* is not finished by organic recoil, as it would be at the end of a word. In these cases, of course, the 'stop' does not require to be written.

The interruption of the throat-passage represented by X́· is one of the principal sources of difficulty in stammering.

14. › In verbal combinations of elementary sound, each element is inseparably joined to the succeeding one. When any element, except the last in a combination, is finished independently of what follows, the sign of 'hiatus' (›) is used. Thus in analysing or phonetically 'spelling' a syllable, we should say that OI consists of the elements O›I—interposing a break. The effect of › will be understood by pronouncing the word 'bedtime,' in which the *d* and *t* are not disjoined, in contrast with the separate pronunciation of the two words '*bed, time.*' Symbol > is an *aspirated* hiatus; Symbol › is non-aspirated—a mere *interval.*

Symbols.

15. ‹ Symbol ‹ denotes a very 'abrupt' utterance, shorter than ordinary 'short quantity.' The latter is implied in all symbols where no sign of quantity is written.

16. ǀ The sign of 'long quantity' or 'holder,' is of obvious application to *sounds;* but it applies also to organic configurations which yield no sound, as to χǀ, where it denotes an interval of silence, from the continued closure of the glottis. The Symbol ǀ shows that the preceding configuration, of whatever nature, is simply 'held' for a moment. Extra prolongation may be denoted by ǀǀ.

17. ˈ The sign of 'accent' or *stress* distinguishes the syllable in a word, or the element in a combination, which receives the principal impulse. The mark is placed on the left side, or *before* the accented syllable.

The learner may usefully familiarize himself with the preceding rudimental Symbols, by pronouncing them in expressive combinations, before proceeding to the more definite elements of Articulate Speech.

When the breath, or the voice, is moulded by precise dispositions of the parts of the mouth, 'Vowels' and 'Consonants' are formed; but at present let the Reader conceive only of a simple 'aspiration,' and a simple utterance of 'voice,' unaffected by any definite arrangement of the mouth, as represented by the Symbols O and I.

The Alphabetic Writing of such effects as those in the following Illustrations is at least a novelty, and it will no doubt be a sufficiently amusing one. But there is also a practical utility involved in the mastery of these rudimentary processes; namely, in preparing the learner for the more important applications that follow, and in giving him some command over the organs of utterance. Such exercises will effectually obviate the difficulty in apprehending *pure sounds* irrespectively of letters and verbal associations, which generally perplexes beginners in their first attempts at speech-analysis.

The Reader may probably observe that many of the following combinations might communicate other sentiments, &c., when pronounced with different Tones or vocal Inflexions. But in the meantime, this prime element of Inarticulate Expressiveness is left out of consideration. In a subsequent section the effect of the Inflexions of the Voice is separately treated of.

EXERCISES ON THE RUDIMENTAL SYMBOLS,

FORMING INTERJECTIONAL OR INARTICULATE UTTERANCES.

Voiceless.

O|< O|	silent respiration.	O|< ›O0|	a sigh.	X›X›X›	suppressed
O|< O|	sighing "	'O0 O0	a sneer.		chuckling.
O< O	panting "	O|< O0|O	a yawn.	X0|	relief.
O§|< O§|	fluttering "	O|< ›0X·	a sneeze checkd.	XΛ0	a short cough.
O||< O||	semi-nasal "	0<X·	a hiccough.	XΛ0X·	a cough checked.
O|< XO	uneasy "	0X·	an effort.	XΛO|	a wheezing cough.
O|< X>0|	painful "	0|	nausea.	XΛOX· XΛOX·	XΛ>a cough.
O< X0§|	groaning "	0§|	disgust.	X›0§	a hem.
0|< 0|	guttural "	0<	a gasp.	X§§	a grunt.
0||< 0||	naso-guttural	O0§|<	shuddering.	X§§|	growling.
0||< 0|§|	stertorous "	X0< 0|	sobbing.	XΛ0§|	clearing the throat.

Vocal.

I	a murmur of observation.	I‹	a pang.	OI'XI§|	a hem.
I|	a drowsy murmur.	I|	a moan.	XI‹	a pang.
I§	a murmur of disapprobation.	I<	a start.	XVI|	acute pain.
I§	" sympathy.	IXΛ'I§§	a loud hem.	XI§|	apprehension of
IΛ	" suffering.	I'XΛIO|I	a cough.		pain.
IO	" relief.	I|| I|< I|| I|<	braying.	XI|	a grumble.
IX	" threatening.	I§||	lowing.	XI§§	a growl.
'I›I	" regret.	OI	a murmur of	X›I	a soft hem.
I›'I	" surprise.		disappointment.	XI<	a sudden start.
I§§	" disgust.	OI|	" ridicule.	XΛI'OI	a cough.
'IO|I	" weariness.	'OIOI	" vexation.	XΛ'IO|I	a wheezing cough.
IO'I|	" triumph.	OI'OI	" decision.	Xθ§|	clearing the voice.
IXΛ·	a violent effort.	OI||	" weariness.	XI§§|	clearing the throat
IX'I|	a baby's scolding.	OI§	" annoyance.		and nose.
		OIX·	" discovery.		

CONSONANTS.

A Consonant is an action of some part of the throat or the mouth, yielding an effect of friction or percussion from the squeezing, dividing, or stopping of the breath. All Consonants may be considered as consisting of *two* parts: I. a configurative position of the organs; and, II. an action of recoil, or of transition to the position for a succeeding element. These are, however, *inseparable* parts of ordinary Consonants. When the configuration is more than merely transitional, and is 'held' for a perceptible time, the effect is separately indicated.

All the Consonant Symbols are derived from the 'stem' C, which, according to the direction in which the curve is turned, represents the Back, the Front, or the Point of the Tongue, or the Lips. In each case the Symbol denotes the same kind of fricative or sibilant emission of breath through a centre-aperture formed between the closely approximated organs.

The outline of the Organic Curve is indented or 'divided' (Ɛ) to show emission by side-apertures,—of course with centre-stoppage;—and the points of the Primary Curve are suggestively closed by a straight line (Ɔ) to denote complete stoppage of the breath by the organic configuration. The sign of nasality (ʃ) joined to the Shut-Consonant symbol (Ɡ) shows oral stoppage with nasal emission. The Organic Curves of opposite formation are united in the symbols Ƈ ƍ, &c. (=C∘Ɔ, Ɔ∘C, &c.) to show the simultaneous action of the two parts of the mouth denoted by the component Curves.

The symbol of Voice (I) is incorporated with each of the 'Primary,' 'Divided,' 'Shut,' or 'Nasal' Letters, to denote the addition of vocal murmur to the consonant action.

All the above varieties will be explained in detail, but the Reader will from this sketch of the Consonant Alphabet, understand the Mono-symbolic plan on which it is constructed.

The following Table exhibits the Primary Organic Symbols, and the Diagrams which follow explain the relation of each Letter to the Organic Configuration which produces its sound.

TABLE OF ORGANIC SYMBOLS.

	Symbols.	Names.	*Explanation.*
1.	C	Back.	The Back of the Tongue contracting the oral passage between it and the soft palate.
2.	ᑐ	Front.	The Front of the Tongue contracting the oral passage between it and the roof of the mouth.
3.	ᑌ	Point.	The Point of the Tongue contracting the oral passage between it and the upper gum.
4.	ᑐ	Lip.	The Lower Lip contracting the passage between it and the upper lip, while the tongue lies in a neutral 'natural' position.
5.	ᑦ	Back-Mixed.	The oral passage contracted by the Back of the Tongue and the Lips, at the same time.
6.	ᔓ	Front-Mixed.	The Front and the Point of the Tongue both raised, so as to bring the convex surface of the tongue close to the front of the palatal arch and the point of the tongue, at the same time, close to the upper gum.
7.	ᔐ	Point-Mixed.	The Point and the Front of the Tongue both raised—the latter in a less degree than for Symbol 6,—bringing the front surface of the tongue near the rim of the palatal arch.
8.	ᔑ	Lip-Mixed.	The Lower Lip and the Back of the Tongue—the latter in a less degree than for Symbol 5,—contracting the oral passage at the same time.

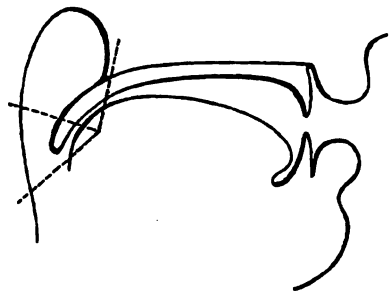
Modifiers.

9.	˔	Inner.	The symbolized action farther back.
10.	˕	Outer.	The symbolized action farther forward.
11.	ᶜ	Inverted.	The Tongue inverted towards the Back of the mouth.
12.	ᵓ	Protruded.	The Tongue protruded towards the Lips.

DIAGRAM OF THE CONSONANT ORGANIC POSITIONS.

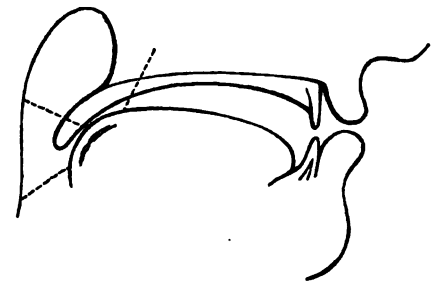
The centre dotted line, in each of the following Diagrams, shows the position of the organs in forming the unmodified Consonants. The positions for the 'inner' (ʃ) and 'outer' (ʃ) varieties are indicated by the other dotted lines.

1.



C

5.



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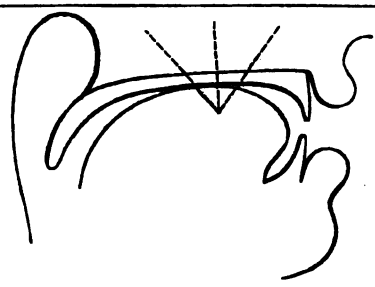
2.



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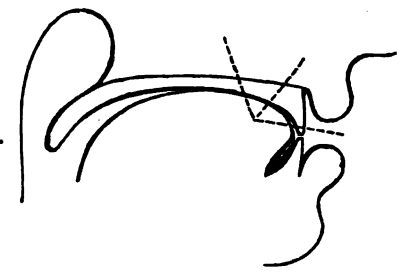
6.



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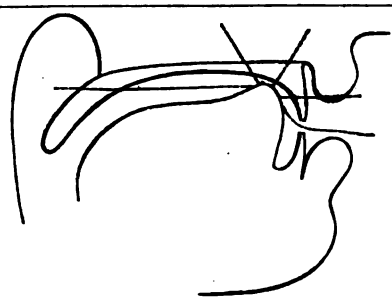
3.



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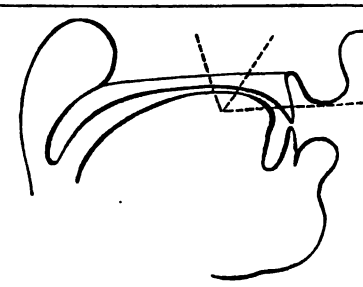
7.



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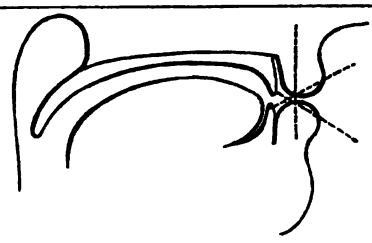
4.



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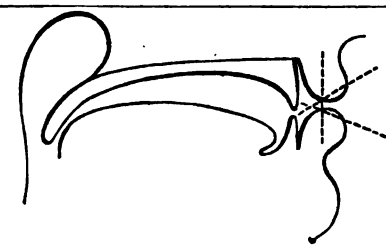
8.



ᘔ

DESCRIPTION OF THE 'INNER' AND 'OUTER' VARIETIES OF EACH OF THE PRIMARY CONSONANTS.

1. C| The Back of the Tongue depressed below the soft palate forms a sibilation or friction of the breath between the parynx and the tongue.
   C| The Back of the Tongue raised to the top of the soft palate, with sibilation.

2. ○| The Front of the Tongue curved downwards as for ○, forms a sibilation between the highest part of the convex organ and the 'inner' or posterior part of the roof of the mouth.
   ○| The convex tongue directed *forward* at the top of the palatal arch, with sibilation.

3. ○| The Point of the Tongue turned within the palatal arch forms a sibilation between the under surface of the tongue and the front wall of the palate.
   ○| The Point of the Tongue directed forward towards the teeth—without centre-contact—forms a sibilation between the tip of the tongue and the teeth.
   ○c The Tongue inverted, forms a sibilant aperture between its point and the back of the palate.
   ○ɔ The Point of the Tongue protruded, forms a sibilant aperture between it and the upper lip.

4. ɔ| The Lower Lip forms a sibilant aperture between its inner surface and the upper teeth.
   ɔ| The Upper Lip drawn downwards forms a sibilant aperture between its centre and the lower teeth.

5. C̟| In forming these 'inner' and 'outer' varieties of C̟, the tongue
   C̟| takes the same positions as for the corresponding varieties of C, but for the latter the lips are spread, while for the former a partial effect of ○ modifies the 'Back' sibilation.

6. ᔓ| The same configuration of the tongue as for ᔓ, but with the
   ᔓ| point of the tongue drawn back to the edge of the palatal arch, produces the 'inner,' and with the tongue advanced towards the teeth, produces the 'outer' variety.

7. ᔐ| The same configuration of the tongue as for ᔐ, but with the point
   ᔐ| of the tongue drawn back within the palatal arch, forms the 'inner,' and with the tongue advanced towards the teeth, forms the 'outer' variety.

8. In forming the 'inner' and 'outer' varieties of ↄ, the lips take the same positions as for the corresponding varieties of symbol ○; but for the latter the tongue lies in a neutral position, while for the former, a partial effect of C modifies the lip sibilation.

The sign of 'closeness' (∧) applied to any of the preceding consonants denotes a narrower aperture, with increased sharpness of sibilation and percussiveness on leaving the configuration; and the sign of 'openness' (∨) denotes a widened aperture with consequent dulness of sibilation and lessened percussion. Thus in forming ○ with 'closeness,' a mere thread of breath issues through the narrow crevice between the lips—as in blowing to *cool;* and in forming ○∨, the breath flows through the wide orifice with the effect of a *sigh* on the lips. The latter effect is interjectionally expressive of *faintness*, or want of air.

 The sign of 'nasality' applied to any of the preceding consonants, shows that the breath flows through the nose *as well as* through the symbolized configuration. The effect is to dull the oral sibilation, and to deprive the transitional action of percussiveness.

 The sign of 'trill' applied to C or to Ɔ, denotes a vibration of the *uvula;* applied to O, it denotes a vibration of the point of the *tongue;* and applied to ○ or to ↄ, it denotes a vibration of the *lips*.

The symbolic curves introduced in this section have the same organic value in all cases. They undergo modifications to express the 'mechanical varieties' of consonants, as shown in the following Table:–

TABLE OF THE MECHANICAL VARIETIES OF CONSONANTS.

All consonants belong to one of the four mechanical classes represented by the symbols C ε ɑ ɑ; and the direction in which the curve is turned uniformly denotes the organic formation of the consonant. Thus :—

	Symbols.	*Names.*	*Explanation.*
1.	C ∩ ∪ ⊃ ꓭ ꓭ ꓭ ꓭ	Organic Name, (Back, Front, Point, Lip.) " " and 'Mixed.'	Organic aperture contracted to a centre chink.
2.	ε ⊓ ω ɜ ε ⊓ ω ɜ	" " " 'Divided.' " " " 'Mixed Divided.'	Organic aperture *divided* by a centre check.
3.	ɑ ⌓ ʊ ɒ	" " " 'Nasal.'	Mouth passage shut and nasal passage open.
4.	ɑ ⌓ ʊ ɒ	" " " 'Shut.'	Oral & nasal passages both shut.

MODIFIERS APPLICABLE TO 'SHUT' CONSONANTS.

	Symbols.	*Names.*	*Explanation.*
5.	▶	Emission stopper.	Organic separation without emission.
6.	◀	Suction stopper.	Suction and organic separation without inhalation.
7.	▌	Side opener.	Lateral or 'divided' termination instead of organic recoil.
8.	ʃ	Nasal opener.	Nasal termination instead of organic recoil.

The following Diagrams exhibit the relation of the mechanical varieties of Consonants to their Symbols.

Each element may take all the affections of 'inner,' 'outer,' 'close,' &c.

The numbers refer to the descriptive paragraphs which follow the Diagrams.

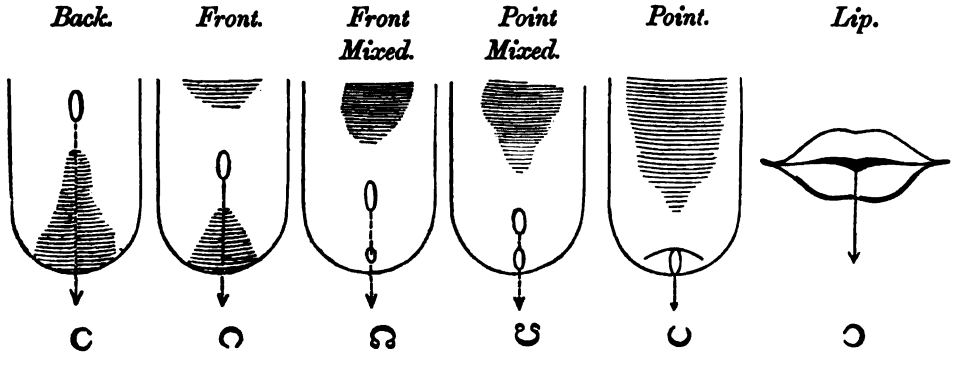
DIAGRAMS OF THE MECHANICAL VARIETIES OF CONSONANTS.

DIVIDED CONSONANTS. When the organs are so placed as to check the breath at the middle of the oral channel, and allow of its emission through interstices at the sides of the obstruction, the breath issues with a comparatively dull hissing or 'lisping' effect; and the subsequent removal of the centre obstruction is attended with a slightly percussive *flap*, which is the essential characteristic of the class of 'Divided' Consonants.

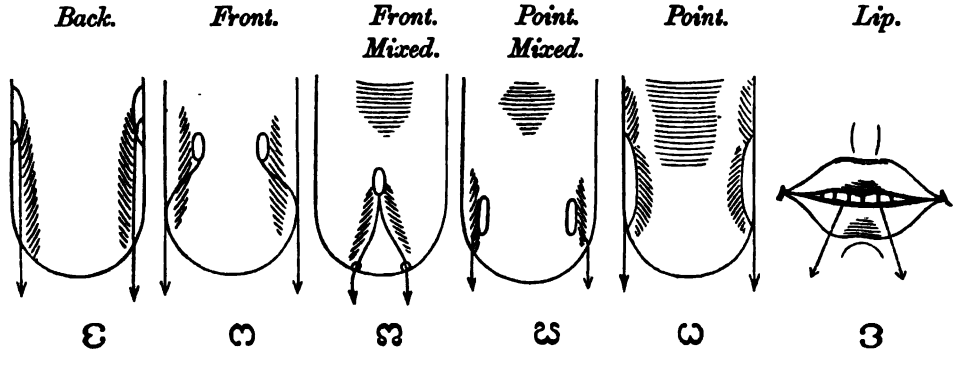
All the organic positions which have been described as forming Centre-aperture or 'Primary' Consonants, yield also Side-aperture or 'Divided' formations.

The mutual relations of the 'Primary' and the 'Divided' Consonants, and the position of the Centre-check for the latter, will be understood from the following Diagrams:—

PRIMARY, OR CENTRE-APERTURE CONSONANTS.



DIVIDED, OR SIDE-APERTURE CONSONANTS.



The 'Shut' and the 'Nasal' Consonants do not require additional illustration. The oral passage is, for both classes of elements, uniformly closed by the symbolized organic position. [See page 63.]

DESCRIPTION OF MECHANICAL VARIETIES OF CONSONANTS

[The numbers refer to the Table, page 56.]

1. PRIMARY CONSONANTS.—The elements of this class have been already described in detail. [See preceding Section.]

2. DIVIDED CONSONANTS.

Symbols.

ꞓ The 'Back-divided' Consonant has its centre check at the uvula. The whole length of the tongue is compressed at the sides; and there is generally a further centre-contact by the forepart of the tongue on the upper gum; but the 'divided' aperture commences at the root of the tongue, and gives the peculiar guttural quality which characterises this element. This is perhaps the most difficult of all articulations to unpractised organs. The easier ꞓ∘ꞷ is often substituted for ꞓ, and the difference in effect is very slight.

ꞓ꞉ This is the same formation as the preceding, with modification by a contracted lip aperture.

ꞷ The 'Front-divided' Consonant has its side apertures within the palatal arch, the centre-check being given by the convex front of the tongue touching the front wall of the palate.

ꞷ꞉ The 'Front-mixed Divided' Consonant has its centre check at the *tip* of the Tongue, and its apertures between the edges of the flattened point and the teeth or the upper gum;—the front of the tongue having considerable convexity within the arch of the palate.

ꞷ The 'Point-Divided' Consonant has its apertures over the sides of the middle of the tongue—the point being in contact with the upper gum; the front surface of the tongue is flattened or slightly concave, so that the apertures are large and productive of but little friction or sibilation. From this circumstance, the 'Point-divided' Consonant—which is always vocal in English—has received the name of a 'semi-vowel.' The articulative recoil, by removal of the centre-check, however, gives this element a distinct consonant quality.

It is possible to pronounce words intelligibly—though, of course, with a peculiarity—while the point of the tongue is held in contact with the palate. This singular mode of utterance was at one time prescribed as the secret of a vaunted method for the cure of *stammering*. The 'cure' was, certainly, not much better than the disease.

Symbols.

ƹ The 'point-mixed divided' Consonant has the apertures of ƍ narrowed by convexity of the front of the tongue, and the breath is in consequence strongly sibilant.

ʒ The 'lip-divided Consonant is formed by placing the centre of the lower lip on the edges of the upper teeth, while the breath hisses through the interstices between the teeth, or between the teeth and the lip.

A similar effect of 'divided' formation results from placing the lower on the upper lip, instead of the teeth, and directing the breath over the corners of the lips. This peculiarity would be represented by the modifier (ɔ) ('to lip') after the 'lip-divided' symbol (ʒɔ).

ʒ In forming ʒ the tongue lies in a neutral position, and the friction of the breath is heard only on the lip. For the 'lip-mixed divided' Consonant (ʒ), the back of the tongue is retracted, and a partial effect of C modifies the labial hiss.

INNER AND OUTER VARIETIES OF DIVIDED CONSONANTS.

The 'inner' and 'outer' formations of the 'divided' Consonants yield less distinctive sounds than those of the Primary or Centre-aperture class. The 'point-divided' Consonant (ƍ) is, however, susceptible of all varieties, 'inner,' 'outer,' 'inverted,' 'protruded,' &c.; and the characteristic sound of ʃʔ may be produced with the tip of the tongue planted on any part of the palate. The 'lip-divided' Consonant (ʒ) has its 'inner' formation when the inner surface, instead of the edge of the lip, is brought in contact with the teeth; and its 'outer' formation when the upper lip is drawn down to meet the lower teeth.

UNI-LATERAL FORMATIONS.

When the breath issues by only one side aperture in forming any 'divided' consonant, the modifier ǀ cut in half (ǁ) furnishes an appropriate symbol for the peculiarity.

NASAL CONSONANTS.

When the organs completely close the passage of the mouth at any point, and the nasal valve is open, the breath issues through the nostrils with a very slight effect of friction. The necessary separation of the oral

The 'shut' consonants are susceptible of all the modifications expressed

organs to form any subsequent vowel gives the audibility of oral effect which is essential to a consonant.

A 'primary' or a 'divided' consonant modified by nasal emission is said to be 'nasalized.' A 'shut' consonant becomes a pure 'nasal,' and is altogether changed in character by the opening of an oral channel for the breath.

The organic formation of the pure 'nasals' corresponds in all respects to that of the 'shut' consonants. The number of the elements of these two classes is consequently the same. The mere closing of the nasal valve converts the 'nasal' ᗡ into the 'shut' ᗡ, ᗡ into ᗡ, &c., without any action of the lips or the tongue.

The English 'Nasals' are always *vocal;* [see 'Voiced Consonants'] and when the nostrils are normally free, the purity of the voice is so little affected by consonant 'fricativeness,' that these beautifully sonorous elements have been commonly, though improperly, called semi-vowels.

They may rather, while the oral passage remains shut, be considered as nasal vowels; and they are often used by themselves as *syllables* when their configurations are momentarily 'held.' But in transitional formation the 'Nasals' are true consonants.

It is quite possible, after a little practice, to utter words entirely through the nose, while the lips remain closed. The effect is of course very peculiar, and in many cases scarcely intelligible. But the motions of the tongue can be heard, and ears accustomed to this supremely lazy kind of articulation, can generally distinguish vernacular phrases with but little difficulty.

SHUT CONSONANTS.

When the organs completely close the passage of the throat or the mouth at any point, and the nasal valve is also shut, there is, of course, no emission until the separation of the organs; but the removal either of the oral or the nasal check is attended with a degree of percussiveness proportioned to the pressure on the confined breath during the organic contact.

The lowest, or most posterior 'shut consonant' is χ, which represents a percussion from the *glottis.* There can be no 'inner' variety of the 'catch;' but an 'outer' formation, or closure of the super-glottal passage (χ⸸), yields a distinct percussion, which is very common in Chinese and in many other languages. The closure is effected by depression of the epi-glottis, as in the act of *swallowing.* These 'throat-shut' consonants can have no nasal correspondents.

When a 'shut' consonant precedes the 'nasal' one of the same organic formation, the oral organs are not disjoined, but the nasal valve is simply opened; as in *pm* ( ) and *dn* ( ) in the words *chapman, midnight*, &c. The independent completion of the 'shut' consonant in such cases would be inconsistent with the law of coalescence, which requires all the elements of a word to be joined together without *hiatus*.

The nasal termination of a final 'shut' consonant is a peculiarity which would be symbolized by subjoining the nasal sign to the consonant. Thus the 'lip-shut' symbol ( ) shows the complete stoppage of the mouth by closing the lips; but it implies also the after-*separation* of the lips. The 'nasal' sign subjoined ( ) would signify the closing of the lips, and the subsequent opening of the nasal valve while the lips remain closed.

When a 'shut' consonant precedes a 'divided' one, formed by the same organ—as *tl* ( ), *dl* ( ), &c.—the principle of coalescence applies in the same way; the 'shut' consonant is finished by opening only the side apertures for the next element while the centre contact is maintained; as in the words *outlaw, heedless*, &c.

The 'divided' termination of a *final* 'shut' consonant is a peculiarity for which the special symbol 'side-opener' ( ) is provided. Thus the 'point-shut' symbol ( ) shows the closing of the passage of the mouth by the point of the tongue, but it implies also the removal of the tongue from the palate. The 'side-opener' subjoined ( ) would signify that only the sides of the tongue are removed while the point-contact is maintained. The opening of a single lateral passage is shown by one half of the modifier. A common lingual 'click' made by coachmen to incite the motion of a horse is formed by this uni-lateral termination of the 'point-shut' consonant ( ).

The 'shut' consonants are sufficiently distinguished for linguistic purposes by the four radical varieties 'Back,' 'Front,' 'Point,' 'Lip,' with their 'inner' and 'outer' formations. The latter correspond with the 'inner' and 'outer' positions of the 'Primary' Consonants, as before described. The 'inner' 'Lip-shut Consonant is formed by pressing the inner surface of the lower lip on the upper teeth; and the 'outer' by pressing the upper lip on the lower teeth, so as to 'shut' in the breath.

The simple 'point-shut' consonant ( ) may be written before or after 'point-mixed' ( ) or 'front-mixed' consonants ( ) because the coalescence of the elements is implied as a necessary part of the combinations.

by ⅄, ⅄, ·, ⅂, ⊳, &c. The 'holder' (⅂) after a 'shut' consonant, signifies that the contact is more than merely transitional, and that the organs are not immediately separated as a part of the articulative impulse. The 'stop' (·), shows that the action is conjunctive only; and the 'emission-stopper (⊳) signifies that the organs are separated after contact, but that the breath is retained.

CONSONANT SUCTIONS.

The formation of the 'shut' consonants by suction (<) gives rise to a peculiar class of elements. The 'lip-shut' symbol followed by the sign of 'suction' (D<) represents a sound interjectionally expressive of sudden pain; but there may be suction during the organic contact and separation of the organs without ingoing air. For this effect the special sign 'suction stopper' (⊲) is provided. The 'lip-shut' (D), 'point-shut' (⊔), and 'front-shut' (⌓) actions performed in this way, and the 'point-shut' with side-termination (⊔|), produce a series of sounds or 'clicks' which are very common in interjectional or inarticulate utterance, and which are elements of ordinary speech in some African languages. In these cases, an *inner closure* of the oral organs is 'held' (C·⅂), while the anterior suctions are made; so that respiration goes on freely through the nostrils during the formation of a series of the 'suctions.'

The 'Back Shut' consonant may also be formed by suction without ingoing air (C⊲); but in this case the *inner closure* of a glottal 'catch' is necessarily maintained (X·), and the respiration is of course stopped.

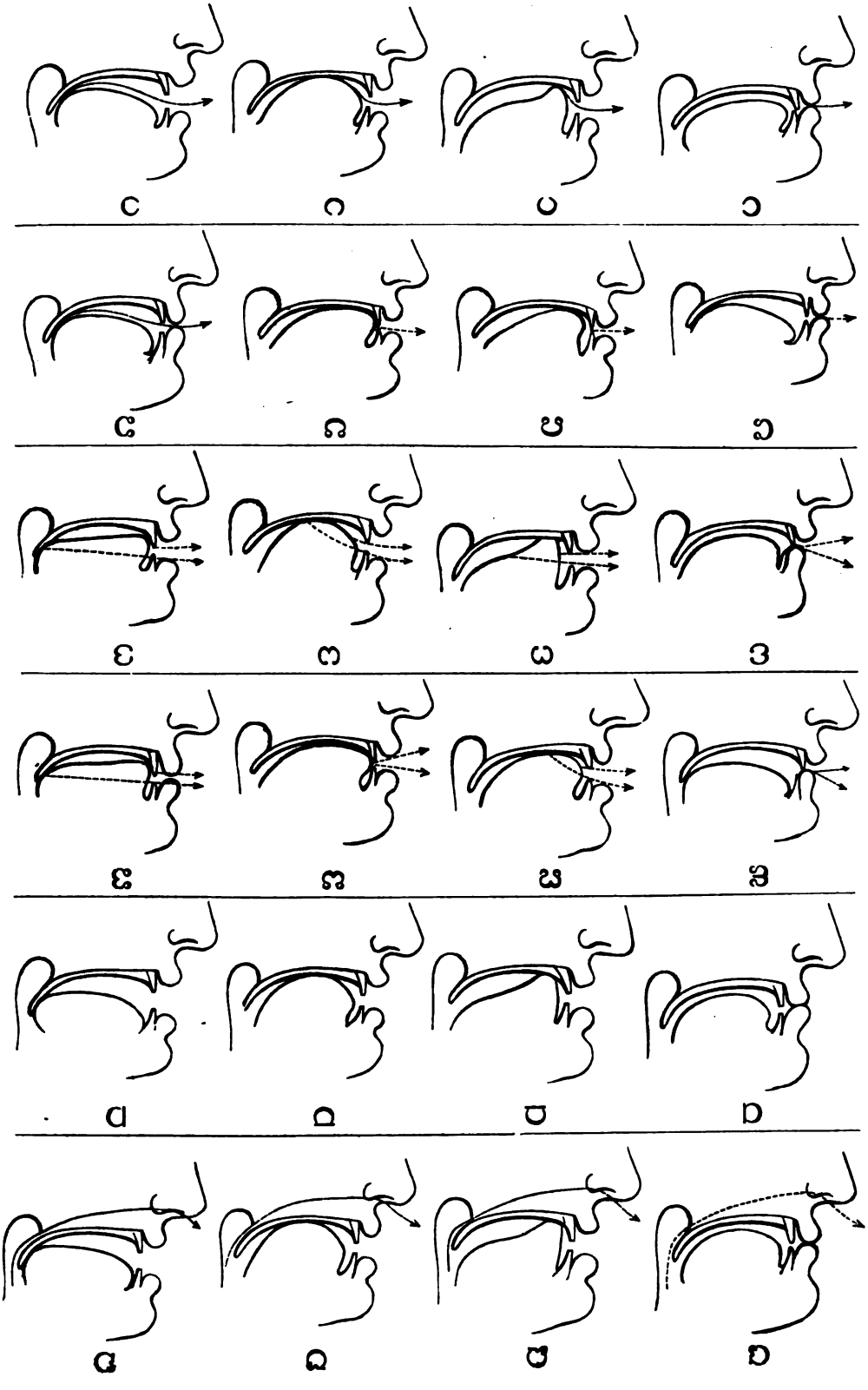
CONSONANT ACTIONS WITHOUT BREATH.

All the consonant configurations of every kind—Primary and Divided as well as Shut—may be formed, with more or less audibility, without either emission or suction. If the breath within the mouth be compressed behind the articulating organs while an *inner closure* is held, a distinct, and in some cases, a powerfully percussive effect will be produced on the abrupt separation of the organs. The signs ⊳ and ⊲ represent the two modes of this mere motion of the organs of speech.

A workman in using the *blow-pipe*, maintains the 'Back-shut' position (C·⅂), and the muscular compression of the breath enclosed within the mouth, between the soft palate and the lips, suffices to continue the slender emission while the operator breathes through his nostrils.

The following Diagrams give a comparative view of all the consonant organic positions represented by the unmodified Symbols :—

COMPARATIVE DIAGRAMS OF THE RADICAL CONSONANT POSITIONS.



EXAMPLE SHOWING THE APPLICATION OF THE MODIFIERS TO A SINGLE CONSONANT ACTION.

The lips closed and opened (with pressure of breath implied.)

The opening of accompanied with vibration of the lips.

The closure of followed by lateral opening of the lips.

The closure of followed by uni-lateral opening. [A smoker's puff.]

The action of with strongly conjunctive closure.

The action of with loose closure.

The action of finished independently of the next element. (Implied in final consonants.)

The closure of without after separation of the lips.

 The closure of followed by opening of the nasal valve instead of labial separation. [A suppressed chuckle.]

The lips closed and opened with accompanying aspiration. [An interjection of contempt.]

The lips closed and opened with accompanying inspiration. [An interjection of pain.

 The lips closed with pressure of breath, and opened without emission from the throat.

The lips closed with suction, and opened without inhalation. [A kiss.]

 The closure of 'held' or prolonged, with subsequent separation of the lips.

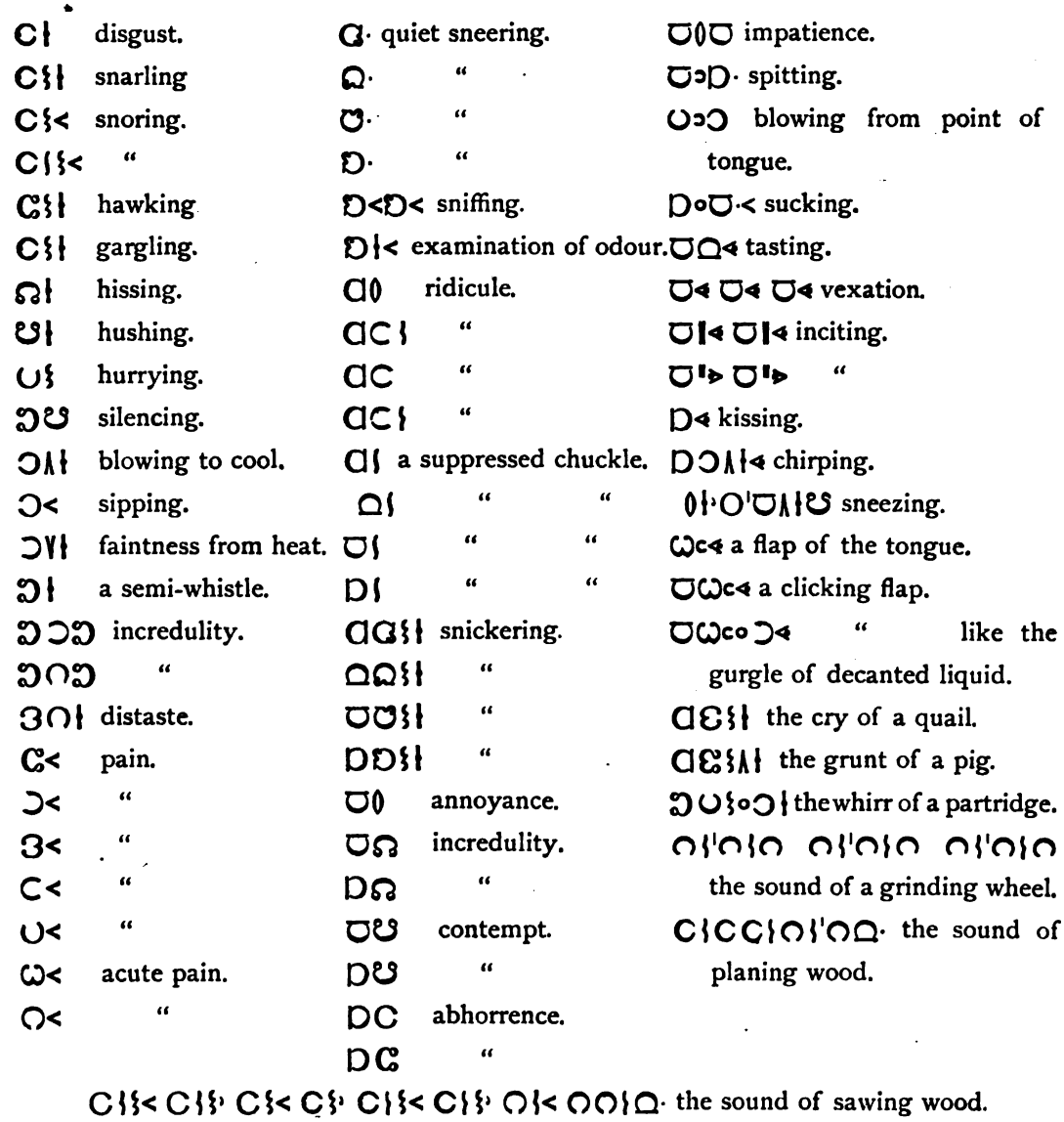
The closure of prolonged, without subsequent separation of the lips. [Expressive of effort.]

 The action of very abrupt.

The following interjectional Exercises on the Consonant Configurations may be usefully pronounced by the learner. This experimental practice will be found the readiest means of obtaining a correct idea of the Consonant positions :—

INTERJECTIONAL EXERCISES

On the Rudimental Consonant Symbols.



VOICED CONSONANTS.

All the Consonant actions have now been described, but each of them gives rise to a second element of speech when the organic position modifies *voice*. This uniform addition to the rudimental sounds is symbolized by the uniform addition of a 'voice-line' (I) to the rudimental symbols. The 'voice-line' is inserted within the consonant curve. Thus :—

Voiceless.	*Voiced.*
0 C ε ɑ ɑ	θ ϵ ε ɛ ɛ

The vocalized Consonants are subject to the same affections of 'inner,' 'outer,' &c., as the non-vocal elements. If therefore the Reader has mastered the import of the organic and modifying symbols, he will be able, without further explanation, to understand the exact phonetic value of all the symbols for Voiced Consonants.

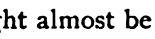
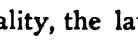
The following Table combines into one Scheme the Radical Consonant Elements, vocal and non-vocal, as illustrated in the Diagrams of their mechanical and organic formation, in preceding sections :—

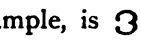
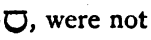
GENERAL SCHEME OF CONSONANTS.

	Voiceless.						*Voiced.*					
		Mixed.	Divided.	Mixed Divided.	Shut.	Nasal.		Mixed.	Divided.	Mixed Divided.	Shut.	Nasal.
Throat.	O	0			X			θ				
Back of Tongue.	C	ꞓ	ε	ꞓ	ɑ	ɑ	ϵ	ϵ	ε	ꞓ	ɛ	ɛ
Front of do.	ᴖ	ᴖ	ᴖ	ᴖ	ᴖ	ᴖ	ᴖ	ᴖ	ᴖ	ᴖ	ᴖ	ᴖ
Point of do.	ᴗ	ᴗ	ᴗ	ᴗ	ᴗ	ᴗ	ᴗ	ᴗ	ᴗ	ᴗ	ᴗ	ᴗ
Lip.	ɔ	ɔ	ɜ	ɜ	ɒ	ɒ	ɘ	ɘ	ɜ	ɜ	ɒ	ɒ

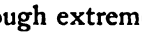
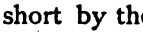
IMPERFECT AND VARIABLE VOCALITY OF CONSONANTS.

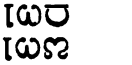
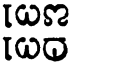
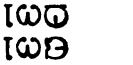
All consonants being merely transitional sounds in ordinary utterance, the voice is not equally sustained from the beginning to the end of the vocalized articulation. In pronouncing the word *leave*, for instance, the vocality of the *v* is clearly heard only at the junction of that element with the syllabic sound—the vowel; and the initially voiced *v* sinks imperceptibly into its voiceless correspondent *f*—as if the word were written *leavf*. This effect does not require to be written, as it is inherent in the implied transitional character of the consonant.

When a voiced consonant comes before a non-vocal element, the murmur of the vocal letter is heard only at the instant of its junction with the preceding vowel, and immediately lost in the transition to the next element, as in the words *art, purse, else, felt, lance, cant, lamp, ink*, &c. The abrupt effect of *l m n ng* in such words might almost be written  , instead of  , but as there *is* a trace of vocality, the latter are the correct elements.

Foreigners, in pronouncing English words, generally fail to give the requisite abruptness to these 'liquids' before voiceless consonants. The foreign pronunciation of *felt*, for example, is  . The native sound would be written  or , were not the imperfect vocality of the *l implied* in the combination.

Of course, where the voiceless correspondent of a vocal consonant is separately heard before or after the latter, both elements should be written; as in a common dialectic pronunciation of the German word *so* ( ).

The preceding observations show that the absolute 'quantity' of voice in a vocal consonant depends on the nature of the following element. Thus the *l* in *felt* () though extremely short, does not require the mark of abruptness, because it is cut short by the *t*, in accordance with the law of coalescence of syllabic elements; and the *l* in *felt* [foreign] () requires the mark of long quantity ('holder') to express the *peculiarity* of its prolongation before a voiceless consonant, although the sound is really shorter than the final *l* in *fell*, which would be expressed by alone. Five degrees of absolute quantity in the sound of *l* will be recognised in the following combinations; but no mark of distinction is necessary in writing, because in each case the consonant has the *normal* quantity due to the associated elements.

1. (shortest)	felt	
2. (longer)	health	
3. (longer)	felled	
4. (longer)	realm	
5. (longest)	fell	

HELD CONSONANTS.

When the organic configuration for any consonant—vocal or voiceless—is maintained,—otherwise than normally in a combination, as above explained,—the element has a distinctive character, which is denoted by the sign 'holder' (ᛁ). The consonants are often thus lingeringly formed for elocutionary effect, as in the lines:

"Roll on (ᛁ), thou deep and dark blue ocean, roll (ᛁ)"

"Hush(ᛁ)ed, hush(ᛁ)ed! How is it that I call
And that thou answerest not?
When(ᛁ) was it thus? Woe, woe, for all
The love (ᛁ) my soul forgot!"
"Stop(ᛁ)! for thy tread is on an empire's dust!"

A voiced consonant when 'held,' before a vowel or at the end of a word, produces the effect of a *syllable;* and the sounds of *l m n*—the most sonorous of all consonants—are in English words frequently syllabic; as in cast*le*, app*le*, tab*le*, chas*m*, rhyth*m*, lis(te)*n*, kitt(e)*n*, butt(o)*n*, &c. The syllabic quality of a 'held' consonant will be distinctly perceived after a vowel, as in the words lis(te)nᛁer, but(to)nᛁing, &c. Such words are, however, often contracted into dissyllables (ᘐᒪᘏᘐᒪᛉ, ᘐᒧᘐᘐᒪᘓ, &c.); but the compound word *apple-eyed* (ᒪᗡᘐᛁᒧᘐ) contrasted with the word *applied* (ᒪᗡᘐᒧᘐ)—which is otherwise identical in its elements—will clearly manifest the difference between a 'held,' and a normally 'transitional' consonant.

CONSONANT COMBINATIONS.

There is no reason why all consonants should not be expressed in the same manner, whether they occur singly or in combinations. Separate characters for the double elements in such words as

(*English*) cheer [tsh] (*German*) zeit [ts]
(„) jeer [dzh] (*Italian*) mezzo [dz], &c.,

are either superfluous or they are requisite in all cases of similar combinations; such as (*English*) tr, dw, cl, gz, &c.; (*German*) pf, &c.

English eyes might perhaps prefer a single type for the sound of J and G in John, George, &c.; or for X in six; but French readers would not share the prejudice in the former case, nor Spanish readers in the latter. Italians might perhaps prefer a single type for the sound of their C in *citta* [English ch], but

neither English nor French readers would partake the feeling, as they are accustomed to associate a single though variable sound with the letter C.

In a UNIVERSAL ALPHABET all compounds must be written *analytically.*

Some persons fail to perceive the compound nature of sounds which they have been accustomed to express by a single letter. But it should be borne in mind that, though the two elements *d* and *zh* are undoubtedly present in the English J; and *t* and *sh* in the Italian C (before *e* and *i*); the first element is *not finished* independently, but—by the law of coalescence, which compacts the elements of a syllable and the syllables of a *word*—the second consonant takes the place of the ordinary 'recoil' which the first element would receive in separate pronunciation. Each consonant, in fact, *loses* part of its normal sound when two are combined in one syllable.

GLIDES.

The Primary' or Centre-aperture Consonants, as we have seen, are formed by the breath or the voice—compressed behind the articulating organs—issuing with a degree of friction, sibilation, or buzzing, through a narrow passage over the 'Back,' the 'Front,' the 'Point,' &c., of the tongue, or between the 'Lips.' When the configurative channel is so far expanded as to remove compression or buzzing from the voice, a series of semi-consonant, semi-vowel sounds results, which we call 'Glides.' These elements are only *transitional* sounds. If they had a 'fixed configuration,' they would be vowels, and would form *syllables*; as even the closer consonants do when their configuration is 'held.'

The 'Glides' being thus intermediate to consonants and vowels, are appropriately represented by the organic consonant curves joined subordinately to vowel stems; thus ɾ ɹ ɾ ɹ, &c. The 'Glides' unite with vowels to form 'diphthongs,' or double sounds with a single syllabic impulse. The vowel 'stems' (ɪɨ) are now specifically employed by themselves to denote *non-syllabic* vowel murmurs.

The latter sounds are very common in the mouths of speakers, and much of the characteristic effect of individual utterance depends on these delicate 'Glides.' Many persons, for instance, habitually use the 'Voice-glide' (ɪ) or the 'Round-glide' (ɨ) in commencing or finishing other elements; and, however accurately the vowels and consonants of such speakers might be written, the result would not be a perfect representation of *their* utterance without the interpolated transitional sounds.

It is the aim of this System of Letters to write every sound which the mouth can make, and to represent it exactly as the mouth makes it. Such minute symbolization is not called for in the ordinary writing of languages; but the *power* must be inherent in a Universal Alphabet; because the peculiarities of utterance which, as idiosyncrasies, may be passed unheeded in writing a speaker's language may possibly be essential characteristics of vernacular pronunciation in some part of the world.

The following is a complete Table of the 'Glides.'

COMPLETE TABLE OF THE GLIDES.

Symbol.	*Name.*	*Explanation.*
1. >	Breath-Glide.	A Transitional aspiration, of organic quality corresponding to that of the adjoining elements [= a soft effect of C ⌒ ◡ ⊃, &c.]
2. I	Voice-Glide.	Vowel murmur [= a non-syllabic effect of ɩ.]
3. Ɨ	Round-Glide.	Rounded murmur [= a non-syllabic effect of ɨ.]
4. ɸ	Throat-Glide.	A semi-vowelized sound of θ.
5. ʅ	Back-Glide.	A semi-vowelized sound of Є.
6. ʅ̄	Back Round-Glide.	A semi-vowelized sound of Є̄.
7. ʎ	Front-Glide.	A semi-vowelized sound of ⌒.
8. ʎ̄	Front Round-Glide.	A semi-vowelized sound of ⌒, with lip modification.
9. ʏ	Point-Glide.	A semi-vowelized sound of ω.
10. ʏ̄	Point Round-Glide.	A semi-vowelized sound of ω, with lip modification.
11. ʔ	Lip-Glide.	A semi-vowelized sound of ɔ.
12. ʔ̄	Lip Round-Glide.	A semi-vowelized sound of ɔ̄.

VOWEL RELATIONS OF THE GLIDES.

No. 4 resembles the vowel J; No. 5 resembles the vowel] or] ; No. 6 resembles the vowel ɜ; No. 7 resembles the vowel [: No. 8 resembles the vowel ɛ; No. 9 resembles the vowel I; No. 10 resembles the vowel ɨ; No. 11 resembles the vowel ɨ; No. 12 resembles the vowel ɨ.

VOWELS.

A 'Vowel' is a syllabic sound moulded by a definite and momentarily *fixed*, or tense, configuration of the free channel of the mouth, and creating no oral sibilation or friction in its emission. A vowel without a 'fixed' configuration loses its syllabic effect, and becomes a 'glide;' and a 'glide' with sibilation or friction in the oral channel becomes a 'consonant.' Consonants, like glides, are merely transitional sounds; but their configurations may be 'held' so as to receive syllabic impulse, in which case a consonant without a vowel has the effect of a syllable. All vowels make syllables.

Primary vowels are those which are most allied to consonants, the voice-channel being expanded only so far as to remove all 'fricative' quality. The same organic adjustments form 'wide' vowels when the resonance-cavity is enlarged behind the configurative aperture;—the physical cause of 'wide' quality being retraction of the soft palate, and expansion of the pharynx.

Voice, as formed in the throat, may be said to have no vowel quality. It derives the latter entirely from the shape and size of the voice-channel in the throat and the mouth. Thus *ee* and *ah* are one sound in the throat; but, for *ee*, the convex front of the tongue must be elevated and advanced close to the front of the palatal arch, so as to contract the oral channel in the greatest degree; while, for *ah*, the root or back of the tongue must be retracted, and depressed below the edge of the soft palate, so as to enlarge the oral channel in the greatest degree. The point of greatest contraction, or the 'configurative aperture,' may be shifted to any part of the back or the front of the palatal arch; and every different attitude of the tongue produces some change in the shape and dimensions of the oral cavity, and consequently a change of vowel quality.

The sounds resulting from the various adjustments of the tongue to the palate are susceptible of an additional modification from the contraction or 'rounding' of the guttural passage,—and, probably, of the upper aperture of the larynx,—accompanied by a corresponding modification of the buccal cavities and of the external aperture of the lips. All the palato-lingual vowels may undergo this change. The dimensions of the labial orifice vary in accordance with those of the oral channel; thus, to 'round' the narrow sound of *ee*, the labial orifice is reduced to little more than a chink; while the broad aperture of *ah* is 'rounded' by contracting only the corners of the lips.

The vowels—whether 'Primary,' 'Wide,' or 'Rounded'—are divided into three classes of palato-lingual formations, according as the oral cavity is moulded mainly by the 'Back,' the 'Front,' or the 'Mixed' (Back and Front) attitudes of the tongue. The 'Back' vowels have the largest oral cavities, the tongue being disengaged from, or depressed below, the line of the upper teeth; the 'Mixed' vowels have smaller cavities, the edges of the tongue being raised to the sides of the teeth; and the 'Front' vowels have the smallest cavities, the convex tongue being elevated within the arch of the palate.

The general outline of the palato-lingual channel for the three classes of vowels will be understood from a comparison of the Diagrams at page 73.

VOWEL SYMBOLS.

The symbol of 'Voice' (I) is the basis or 'stem' of all the vowel letters. To this 'stem' a 'Primary' or a 'Wide' 'Definer' is added, to show the organic formation of the sounds. The 'Definer' is joined to the inner or *left* side of the stem for 'Back' vowels; to the outer or *right* side for 'Front' vowels; and to *both sides* of the 'stem' for 'Mixed' vowels. The 'Definer' for 'Primary' vowels is a *dot* (1), and for 'Wide' vowels, a *hook* (1).

Three degrees of *elevation* of the tongue in its 'Back,' 'Front,' or 'Mixed' attitudes, are discriminated by the position of the 'Definers' on the vowel 'stem.' The 'Definers' stand at the *upper* end of the stem for the 'high' vowel of each class; at the *lower* end for the 'low;' and at *both* ends for the 'mid' vowel of each series. Thus :—

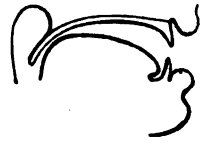
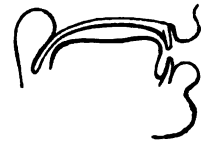
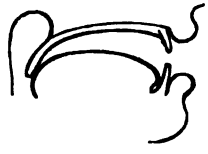
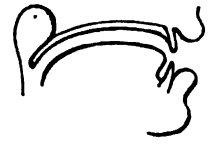
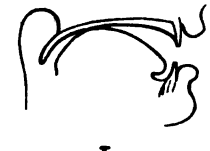
VOWEL SYMBOLS.

	PRIMARY VOWELS.			WIDE VOWELS.		
	Back.	*Mixed.*	*Front.*	*Back.*	*Mixed.*	*Front.*
High,	1	1	1	1	1	1
Mid,	1	1	1	1	1	1
Low,	1	1	1	1	1	1

The relation of the Symbols to the organic positions is exhibited in the next Section.

RELATIVE ORGANIC FORMATION OF VOWELS.

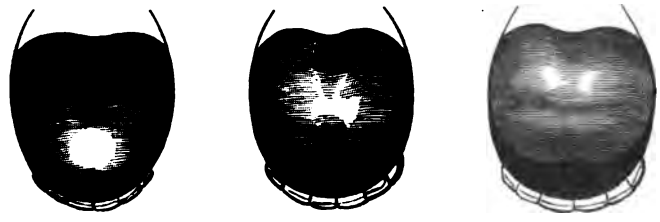
The relative positions of the tongue to the palate indicated by the Vowel Symbols will be understood by comparing the following series of Diagrams. From the 'Low Back' to the 'High Front' positions, the cavity of the mouth is progressively diminished; the 'Mixed' vowels being intermediate to the 'Back' and 'Front' vowels. Conversely, the progressive enlargement of the vowel cavity will be seen on comparing the Diagrams in the order from 1 to 9.

	Back.	*Mixed.*	*Front.*
	7.	4.	1.
High.			
	ɭ	ɪ	i
	8.	5.	2.
Mid.			
	ɻ	ɭ	ɾ
	9.	6.	3.
Low.			
	ɽ	ɺ	ɺ

The following additional illustrations of the relative apertures of the 'Front' vowels will help the reader to a clear understanding of the mechanical cause of variations in vowel quality. The eye is supposed to look down on the convex surface of the tongue through the roof of the mouth. The front line is the rim of the palatal arch.

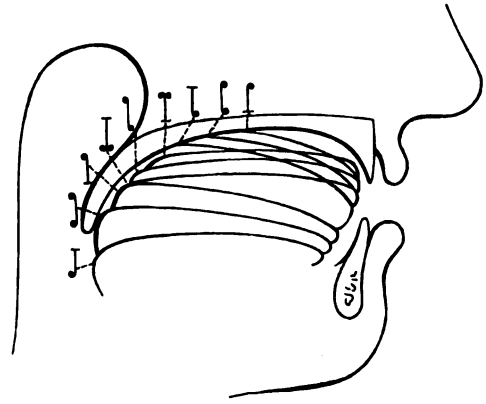
Relative Apertures of Front Vowels.

High (Narrow.) *Mid.* *Low* (Broad.)



The following Diagram presents a further illustration of the *Scale* formed by the progression of the 'configurative aperture' for the radical Lingual Vowels. [See '*Modulated Whisper.*'] The diagram combines in one view the series of nine positions separately illustrated at page 73.

SCALE OF LINGUAL VOWELS.



RELATION OF VOWEL TO CONSONANT POSITIONS.

The various positions of the tongue which produce 'centre-aperture' Consonants, form vowels when the channel between the organs is sufficiently expanded and firm to allow the breath to pass without oral friction or sibilation. The vowel positions thus bear a definite relation to the Consonant attitudes of the different parts of the tongue. A knowledge of these elementary relations will enable learners who are acquainted with the simple consonant-frictions to interpret the Vowel Symbols with uniformity in different countries.

The 'Back' Vowels are allied to the 'Back' Consonant and its 'inner' and 'outer' varieties; the 'inner' consonant corresponding to the 'Low-Back' vowel, and the 'outer' to the 'High-Back' vowel.

The 'Front' vowels are allied to the 'Front' consonant and its 'inner' and 'outer' varieties; the 'outer' consonant corresponding to the 'High-Front' vowel, and the 'inner' to the 'Low-Front' vowel.

The 'Mixed' vowels are allied to the 'Point' consonant and the 'Mixed' Point-and-Front varieties. The 'Front-Mixed' consonant corresponds to the 'High-Mixed' vowel; the 'Point-Mixed' consonant to the 'Mid-Mixed' vowel; and the 'Point-Consonant' to the 'Low-Mixed' vowel.

The 'Mid-Mixed' vowel brings the tongue into the ordinary position of rest; the 'Back' and 'Front' surfaces of the tongue are equi-distant from the corresponding parts of the palate, and the quality of the sound is *neutral.* This, therefore, may be called the 'Natural Vowel' position.

These Vowel and Consonant Relations are illustrated in the following Table:

MUTUAL RELATIONS OF 'PRIMARY' CONSONANTS AND VOWELS.

Consonants.	*Vowels.*	*Consonants.*	*Vowels.*	*Consonants.*	*Vowels.*
C{	1	ᘏ	ɪ	ᘐ{	ɪ
C	]	ᘐ	ɪ	ᘐ	[
C{	ɪ	ᘐ	ɪ	ᘐ{	ɪ

LIP-MODIFIED OR 'ROUND' VOWELS.

All the varieties of 'Primary' and 'Wide' vowels hitherto explained, result from the shape and size of the cavity of the mouth as affected by the Tongue, while the lips remain spread so as not to influence the sound. The same lingual positions yield another series of vowels when the voice-channel is 'rounded' and the aperture of the lips contracted. The mechanical cause of 'round' quality commences in the super-glottal passage, and extends through the whole mouth-tube, by lateral compression of the buccal cavities and reduction of the labial aperture. The last cause—lip-modification—being the 'visible' cause of 'round' quality, is assumed as representative of the effect.

The amount of lip-modification corresponds to the degree of elevation of the tongue; 'High' vowels have the narrowest labial aperture; 'Low' vowels the broadest; and 'Mid' vowels an intermediate aperture.

This uniform addition of lip-modification is symbolized by a uniform addition to the vowel 'stem.' The symbol expresses the organic action by an obvious analogy. The lips are drawn *across the aperture* of a lingual vowel in order to 'round' its quality; and the resulting effect is symbolized by a short line drawn *across the vowel 'stem.'* Thus: ɨ ɪ ɻ, &c.

The 'rounded' vowels are called 'High-Back Round' (ɨ), 'High-Back Wide Round' (ɪ), &c.; the syllable 'Round' being added to the name of the Tongue-vowel symbol.

The effect of 'round' modification, not being dependent on the lips alone, is producible—with some peculiarity—without contraction of the labial aperture; and this *inner* 'rounding' is practised as a concealment by ventriloquists. The sign of 'inner' formation may be used to denote this mode of pronunciation. Thus: ɨ̽ [oo, rounded without the lips.]

The Reader will now have a definite idea of the oral configurations represented by the symbols of 'Round' vowels, as shown in the following Table:—

SYMBOLS OF 'ROUND' VOWELS.

	PRIMARY.			WIDE.			*Relative Lip Aperture.*
	Back.	*Mixed.*	*Front.*	*Back.*	*Mixed.*	*Front.*	
High.	ɨ	ɪ	ɛ	ɨ	ɪ	ɛ	
Mid.	ɜ	ɘ	ɛ	ɜ	ɘ	ɛ	
Low.	ɜ	ɪ	ɛ	ɜ	ɪ	ɛ	

Other faintly different shades of vowel sound are possible; as, for instance, from giving a greater or less than the ordinary or *symmetrical* degree of lip-modification. Even these delicate varieties may be perfectly expressed by the modifiers 'close' (ʌ), 'open' (ʏ), 'inner' (ɻ), 'outer' (ɻ), or by 'linked' symbols; but such compound letters can never be required in the writing of languages, except to show the curiously minute accuracy with which these plastic physiological symbols may be applied.

NASALIZED VOWELS.

When the nasal valve is opened simultaneously with the formation of a vowel, the breath or voice issues partly through the nostrils and partly through the oral configuration. This, with a degree of 'gliding' semi-consonant contraction in the guttural passage, is the formation of the common French sounds represented by *n* after a vowel letter. To indicate the 'mixed-nasal' or *naso-guttural* quality of these elements, the special symbol ʕ is provided. The symbol is formed by uniting ʢ subordinately with the ordinary nasal sign ʃ.

The precise oral qualities of the French nasals must be settled by native orthoepists. We write in accordance with, at least, a very general usage,

Examples.

an / en	ꞁꞅ	ꞁꞅꞁꞁꞅ· ꝏꞁꞅ-ꝏ-ꞁꞅꞁꞁꞅ·
in	ꞁꞅ	ENFIN. MON-ENFANT.
on	ꞁꞅ	ꝏꞁꞁꞁꞅ-ꝏ-ꞁ ꞁꞁꞅ ꝏꞁꞁ·
un	ꞁꞅ	CHACUN—À SON GOUT.

Partial nasality without guttural modification—such as is heard in some of the American dialects, and from individual speakers—is represented by the ordinary nasal sign (ꞁ) placed after the affected vowel.

Any vowel may be nasalized.

VOWELS OF GLIDING QUALITY—DIPHTHONGS.

All the Vowel Symbols represent sounds of 'fixed' configuration—monophthongs; but many syllabic sounds have a superadded gliding quality, which converts them into 'diphthongs' or double sounds. The second element of an ordinary diphthong is not, however, another *vowel*, as it has neither 'fixed configuration' nor 'syllabic impulse.' The initial element is a vowel; the second is a transitional sound or 'glide,' and the two, in combination, form but a single syllable.

The difference between a 'diphthong,' thus explained, and a combination of two vowels, will be manifest on comparing the diphthong ī in *knives* (ꝏꞁꞁꞁꞁꞁ) with the dissyllabic combination of the same sounds in *naive* (ꝏꞁꞁꞁ); or the diphthongal ā in *famous* (ꞁꞁꞁꞁꞁꞁ) with the dissyllabic compound of the same sounds in phȧėton (ꞁꞁꞁꞁꞁꞁ).

The diphthongal quality of the English ā will not, at first, be admitted by every reader; but the double quality of the sound cannot fail to be apprehended in slow pronunciation or in singing; or, better, by contrasting the English with the Scotch pronunciation of any word containing ā under accent. The Scotch ā is—like the French é—a monophthong. Thus:

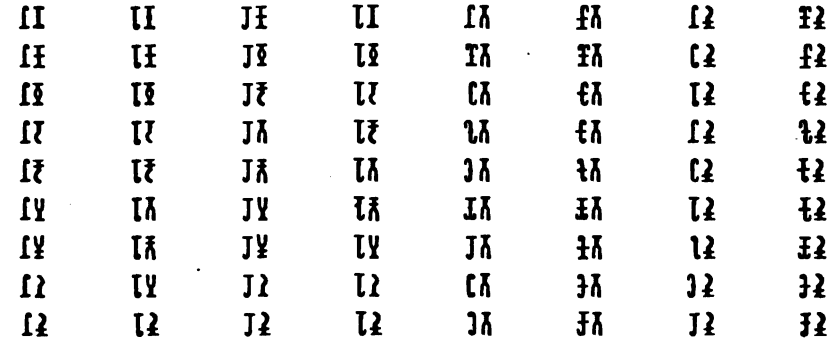
[Scotch:] ꞁꞁꞁꞁ, [English:] ꞁꞁꞁꞁ, *fail.*

A diphthongal glide may be a transition either towards the 'natural' vowel (see page 75) or its 'rounded' correspondent; or towards the configuration for

a 'centre aperture' consonant vowelized, *i.e.*, formed without the friction or buzzing of a consonant. All monosyllabic diphthongs are accurately symbolized by the appropriate 'glide' placed after the initial vowel. In such words as *cruel, creole,* &c., two vowels, and consequently two syllables, are heard.

The following examples, which include only a few out of the vast number of possible 'diphthongs,' will furnish the Reader with a useful organic exercise.

EXAMPLES OF DIPHTHONGS.



VOWEL QUANTITY.

The vowel symbols imply ordinary 'short' quantity, as the words *it, if, ill,* &c. Abruptness (ˌ), and prolongation (ˈ), are separately denoted.

The absolute length of a syllable is greatly dependent on the nature of the elements which follow the syllabic vowel; as in the words

seek, seem, see.	root, room, rue.	late, lain, lay.
goad, goal, go.	sought, sawed, saw.	right, rhyme, wry.
fork, form, for.	curt, curl, cur.	deck, dealt, dell.
bit, built, bill.	hat, hank, hand.	rot, romp, wrong.

Vowels before *non-vocal* consonants are always shorter than before *voiced* consonants, or when *final,* under accent. Such differences do not require to be indicated, as they are implied in the nature of the combinations. The vowel in the word *meet,* for instance, is considerably shorter than in the words *meal* or *me;* but, notwithstanding the shortening influence of the voiceless consonant in *meet,* the vowel should have the same mark of long quantity as in *meal,* because it is 'long' as compared with its 'short' correlative in *meet* (Scotch) or *mit* (German),

and only further lengthened by its association with the vocal *l*. The 'short' correlative of the sound 'meal' is heard in the French 'mille.'

The reader will bear this principle in mind, and not pronounce all long vowels equally long, or all short vowels equally short.

Extra prolongation of a vowel—as in drawling—may be shown by doubling the sign of long quantity (ᛁᛁ). Four degrees of quantity may be thus distinguished by the symbols; as:

1. Abrupt or extra-short (ah), J‹
2. Ordinary short, . . . J
3. Ordinary long, . . . Jᛁ
4. Extra-long, . . . Jᛁᛁ

LINKED SYMBOLS.

Some peculiar oral combinations are occasionally met with among individual speakers, such as pronouncing R with a labial quality added to the ordinary lingual formation; or uniting a 'Point' and a 'Back' friction for the same element; modifying S with rounded lips, or with the lower lip in the position or F, &c. All such peculiarities may be indicated at pleasure by writing two organic symbols with a 'link' (o) between them, to show that they are to be pronounced simultaneously and not in succession. Thus: ω∘Ↄ, labialized *r*; ω∘C, gutturalized *r*; ᘏ∘З, *s* modified by *f*; &c.

Any two elements—vowels, consonants, or one of each class—may be thus 'linked,' where a single alphabetic symbol does not express the whole mechanism of a peculiar sound. Thus the 'Low-Back' vowel 'linked' to the 'Lip'-Consonant (J∘Ↄ) would show close labial modification of a sound which, when normally 'rounded,' is associated with a broad aperture of the lips, &c.

GOVERNING SIGNS.

A pair of 'linked' symbols within parenthesis (ω∘Ↄ) (ω∘C), &c., may be used as Governing signs to denote *habitual* peculiarities of any kind, and to save the writing of the latter at every instance of their recurrence. Thus the 'Nasal' sign, or the 'Back' or the 'Lip' consonant, 'linked' to any element, will show a general nasalizing, gutturalizing, or labializing of that particular sound; as (ω∘ʃ:) *l* nasal; (ω∘C) *l* guttural, &c.

A more general indication of such peculiarities, without reference to any specific element, will be furnished by writing the 'link' before the 'nasal' or other organic sign by itself, within parenthesis; as (ᴏ⊃Y:) *close lips;* (ᴏ◡ɔ:) *protruded tongue;* (ᴏ∫:) *general nasal quality;* (ᴏIΛ:) *strained voice,* &c.

Habits of lisping, burring, &c.; peculiar elementary substitutions; huskiness, drawling, abruptness, hemming, monotony or prevailing tone; audible inhaling, 'windy suspiration of forced breath,' closing the teeth, jerking the emphasis, licking or biting the lips, speaking from one side of the mouth, &c., may thus be simply conveyed to the eye.

This species of *fac-simile* writing may be found useful for *directive* purposes, to composers of vocal music, dramatic authors and actors, teachers of oratory or of singing, &c.; as well as amusingly applicable, on special occasions, by *too* faithful 'reporters,' in presenting a typic *phonogram* of the idiosyncrasies of speakers.

Subjoined are a few examples of 'linked' symbols:—

(ω∘Є:) r, guttural.
(ω∘Ɔ:) r, labial.
(ᘐ∘Ɔ:) wh, as w.
(Ɔ∘Ɔ:) w, as v.
(ᘏ∘ᘏ:) s, as th.
(ᘏ∘ᘏ:) s, as sh.
(ᘏ∘ᘏ:) sh, as s.
(ᗡω∘ᗡω:) cl, as tl.
(Ɔ∘Ɔ: &c.) obstructed nasals.
(Ɛ∘ƐƐ:) ng, as ngg.
(O∘I:) h omitted.
(I∘O:) vowels aspirated.
(Y∘ω:) r-glide, as r-consonant.
(ᑕΛ∘ᑕ:) Scotch ā.
(ᑕΛ∘ᒐΛ:) Cockney ā.
(ᑫ∘ᑫ:) Scotch ō.
(ᑫ∘ᒐᑫ:) Cockney ō.
(ᑕY∘ᑕω:) Scotch ā before r.
(ᑫY∘ᑫω:) Scotch ō before r.
(IY∘IY:) American e or i before r.
(ᗰᑫ∘ᑕᑫ:) American ū.
(ᒍᑫ∘ᑕᑫ∫:) American *ow* in *now.*
(ᴏᑫ∫:) Inner rounding of oo, [without the lips.]
(ᴏω∫:) r trilled.
(ᴏ0:) whisper.
(ᴏθ:) husky voice.
(ᴏIΛ:) strained voice.
(ᴏIY:) soft voice.
(ᴏI∫∫:) drawling.
(ᴏI‹:) abrupt vowels.
(ᴏI∫:) vocal tremor.
(ᴏ< :) audible inspirations.
(ᴏ> :) transitional aspirations.
(ᴏI›I:) transitional murmurs [hemming and hawing.]
(ᴏΛ:) keeping the mouth close.
(ᴏY:) keeping the mouth open.
(ᴏXI:) coughing the vowels.
(ᴏX:) choking utterance.
(ᴏ› :) hesitancy.
(ᴏᗡ· : &c.) 'stopping' consonants [stammering.]
(ᴏᗡ›ᗡ: &c.) repeating consonants [stuttering.]
(ᴏ¹:) marked accentuation [rhythm.]

ANALYSIS OF 'MIXED' SYMBOLS, AND OPTIONAL EXTENSION OF THE PRINCIPLE.

The 'Mixed' Vowel and Consonant Symbols provided in the alphabet may be considered as equivalent to 'linked' letters, which are, for typographic convenience, combined in one character. Thus the vowel ɪ might be written]o[; ɩ might be written]o[; I might be written Jo[; to express the *same* sounds.

So, too, the consonant ᑕ might be written ᑕoᑐ ; ᘏ might be written ᑎoᑌ ; ᘐ might be written ᑌoᑎ ; ᘑ might be written ᑐoᑕ ; but in the case of the consonants the 'mixed' symbols express more than combination, as they are designed to show *excess* of one over the other element in the organic compound.

On the same principle, other alphabetic forms may be introduced to show the combinations ᑕoᑎ, ᑕoᑌ, ᑐoᑌ, ᑐoᑎ, &c., with excess of either element, should it be found desirable for local convenience anywhere, to express such organic compounds by single types. The *principle* of the system admits of an extension of the alphabetic characters without danger of ambiguity; as each radical symbol retains its organic value with uniformity in all cases.

The sign of 'trill,' or of 'inner' or 'outer' formation, of 'stop' or 'holder,' or of 'nasal' or 'naso-guttural' modification, may be similarly combined, by superposition or otherwise, *ad libitum*, with the letters to which they refer, wherever convenience could be served by the incorporation of the symbols into single types.

TONES.

The most important affection of simple voice is modulation, or change of pitch. The qualities of tone are most clearly felt in connection with *inarticulate* sound. But even articulate speech is interpreted by tone; and in all cases where *sentiment* rather than the communication of ideas is concerned, the modulations which accompany utterance are more expressive than words. In the Chinese language, the same combinations of articulate elements pronounced with different tones, are said to express an equal number of distinct meanings. Hence the necessity of including modulative signs in a scheme of speech-symbols adapted for universal application.

Chinese linguists, however, use the word 'tone' in a peculiar sense. They include under that name effects which are not properly varieties of *intonation*. Thus, the sudden check given to a vowel by the closing of the glottis is reckoned a 'tone.' In Visible Speech this effect is represented by the symbol for 'stop' (·), or for 'catch' (χ).

The degrees of modulation are almost infinitely numerous, and they are perhaps incapable of exact symbolization; but there are radical varieties of inflexion, each of which conveys a distinct significance, and to some one of which all minor modifications must be generically related. These radical inflexions may be usefully symbolized. Thus:

Symbol.	
–	Level tone.
/	Simple rising inflexion.
\	Simple falling inflexion.
v	Compound rising inflexion:—falling and rising with a single impulse of voice.
ʌ	Compound falling inflexion:—rising and falling with a single impulse of voice.

The effect of a monotone is *reflective;* the effect of a rising tone is *prospective;* and of a falling tone *retrospective.* Thus a vocal murmur with monotone (I-) expresses attention or observation; and a prolonged monotone (I|-) musing. A simple rising inflexion, of limited range, expresses enquiry or doubt (I′); and a prolonged one, self-interrogation or prospective musing (I|′). A simple falling inflexion, of moderate interval, expresses assertion or assurance (I˴); and a prolonged one, self-assurance or retrospective musing (I|˴). When rising or falling inflexions are modified to intervals of pitch corresponding to those of the 'minor mode' in music, the effect is *plaintive:* a simple rise expresses compassion or supplication; and a simple fall, regret or lamentation. When the rising or falling tone extends through greater intervals—of a fifth, an octave, or more—the rise expresses surprise or incredulity; and the fall, injunction or dogmatism.

The effect of the *compound* tones—which combine a fall and a rise, or a rise and a fall, with one accentual impulse—is to *suggest* the expressiveness of their *first* element in antithesis to that of their second element. Thus a compound rising tone is appellatory or prospective by its termination, and affirmative by

its commencement: it *suggests* affirmatively that an effect or consequence *will follow* the utterance. This tone (I$_{v}$) thus expresses warning or discontent, when of moderate range; regretful supplication or unwilling detraction, when in the 'minor mode;' threatening or contemptuous appeal, when of extended range; and musing or reflection on *contingent* probabilities, when prolonged (I$\frac{}{v}$). A compound falling tone is affirmative or retrospective by its termination, and appellatory by its commencement: it *suggests* interrogatively that enquiry, cause, or motive *has preceded* the utterance. This tone (I$_{\wedge}$) thus expresses counter-assertion, or impugning, when of moderate range; compassionate affirmation or derisive commendation, when of 'minor' interval; dogmatic counter-assertion, or sarcasm, when of extended range; and reflection on consistent *certainties* when prolonged (I$\frac{}{\wedge}$).

Illustrations in connection with *words* may help the reader to produce these varieties of expressive inflexion. Thus:

I. Pronounce the word '*I*$^{\prime}$' with simple rising tone, and the utterance will be felt to be as plainly interrogative as the equivalent sentential expression '*Is it I?*'

II. Pronounce the word '*You*$^{\backprime}$' with simple falling tone, and the utterance will be felt to be as plainly assertive as the equivalent sentence, '*It was you!*'

III. Pronounce the word '*go* $^{\smile}$' with compound rising tone, and the utterance will be felt to be equivalent to 'go—*or* an understood consequence will follow!' Or pronounce the sentence '*I* $^{\smile}$ would not,' and the tone will be felt to suggest the positive inference—'but another might.'

IV. Pronounce the word '*go* $^{\frown}$' with compound falling tone, and the utterance will be felt to be equivalent to 'go—*because* an understood motive or reason urges!' Or, pronounce the sentence '*You* $^{\frown}$ *did it!*' and the tone will be felt to suggest the negative or appellatory inference—'and not another person.'

The preceding analysis of Tones shows that the effects of intonation are not less various in our own language than they can be in Chinese or in any tongue. Modulative expressiveness is, in fact, the same in all countries: it is not, like articulate utterance, arbitrary and conventional, but instinctive and natural.

This statement may be thought to be at variance with the fact, that in every dialect, and almost in every family, there is a prevailing modulative *tune;* but

this habitual succession of tones is associated only with articulate language, which is altogether habitual, artificial, and local. In the use of *inarticulate* modulations, there is, no doubt, a universal agreement.

It is further to be noticed, that the prevailing tones of dialects, families, or individuals, reveal the prominent points of individual or national *character*. Thus a wide variety of pitch and inflexion in speech denotes vivacity and levity of disposition; and a general sameness of pitch, or a limited range of inflexions, denotes comparative dulness and gravity. A predominance of simple rising tones characterizes timid, retiring, dependent, inconfident, querulous, scrupulous conciliatory people; a predominance of simple falling tones characterizes bold, rash, independent, persevering, confident, dominating, stern, uncompromising people; a predominance of compound rising tones characterizes vain, forward, self-aggrandizing, shrewd, calculating, clever, insinuating, wily people; and a predominance of compound falling tones characterizes proud, self-confident, supercilious, sarcastic, revengeful people. As a general rule, *simple* tones indicate *artlessness*, and *compound* tones *artfulness* of character.

An accomplished speaker, in any country, cannot express himself with habitual modulative tune of any kind. His voice will be constantly varied in pitch, inflexion, and range, in accordance with his feeling of the *inherent* expressiveness of the tones. The association of this vocal *vis naturæ* with the utterance of conventional language, constitutes the great difficulty in acquiring, and the great charm in listening to, the delivery of an effective reader, orator, or tragedian.

In our notation of Tones, no more is aimed at than the discrimination of the radical varieties:—*level*, and *simple* or *compound rise* or *fall*. The types for tones—being, however, like all the 'Visible Speech' types, reversible—may be used to indicate relative *pitch* as well as inflexion. Thus:

J′ high-pitched rise, (expressing simple enquiry).
J, low-pitched rise, (expressing interrogative surprise).
J, low-pitched fall, (expressing simple assertion).
J` high-pitched fall, (expressing dogmatic assertion).

One additional symbol for modulation, or change of KEY, furnishes all that it can be desirable to indicate in connection with Tones in the writing of languages. Thus:

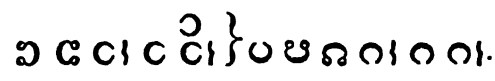
˽ Key elevated. ˼ Key depressed.

MODULATED WHISPER.

An observant ear will detect the quality of modulation or change of pitch even in a simple breathing. A sigh may thus be modulated. The rising modulation of a sigh conveys a sentiment of anticipation; the falling, a sentiment of remembrance. The difference is due to a change in the size of the oral cavity, and consequently a change in the *vowel* quality of the breath.

Every configuration of the mouth gives the breath an absolute pitch, so that it will be found impossible to whisper any one vowel with changes of modulation. There is no difficulty in changing the pitch of the breath; but with every change, the vowel quality—the oral configuration—is altered. As the tongue increases in convexity, the cavity of the mouth is lessened, and the pitch rises; and as the aperture of the lips is narrowed, the pitch falls. The lowest sound is consequently that which has the root of the tongue most depressed and the lips in the closest position.

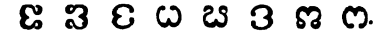
Each of the consonant sibilations, as well as the vowels, will thus be found to have an inherent pitch; but the pitch of the consonants may be considerably varied by 'inner' or 'outer' shifts of the configurative aperture, and by alterations in the oral cavity, which do not destroy the essential character of the sibilation. The following is the modulative *order* of the primary consonants:—



In forming the first of these elements, the tongue is in the 'high-back' position. A deeper series of sounds can consequently be formed by depressing the back of the tongue while the lips retain the close position of ᘐ. Thus the following form a lower descending series:

(ᘐ:) [the sign of whisper:] ᘐ(=ᘐ) ᘐ ᘐ.

The 'divided' formations are lower in pitch than the 'primary' or centre-aperture elements of the same organic mechanism. The following is the modulative order of the 'divided' consonants:



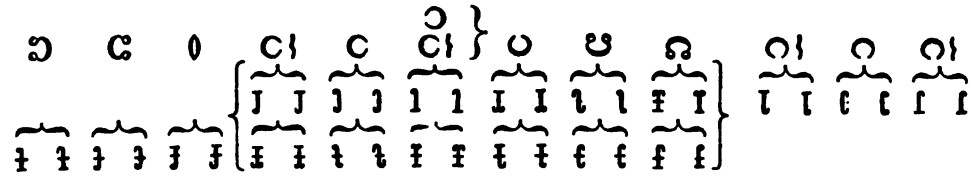
The vowels allied to the centre-aperture consonants yield whispers of slightly lower pitch than that of the consonants, because of the greater expansion of the breath-channel. For the same reason, the 'wide' vowels of the

'front' and the 'mixed' series are a degree lower than the 'primary' vowels; but the 'primary' vowels of the 'back' series are a degree lower in pitch than the 'wide' vowels, because the greater retraction of the tongue enlarges the oral cavity. The following is the modulative order of the Lingual vowels:

The 'rounded' vowels are lower in pitch than their corresponding simple 'linguals.' The pitch of the highest of the 'rounded' vowels is the same as that of the 'high-mixed' of the lingual series; and the pitch of the 'low-back' vowel is the same as that of the 'low-mixed' of the 'rounded' series. The unisons in the scales explain the similarity in effect of guttural and of labial modification before referred to. [See page 76]. Thus in forming ɔ, the tongue is in the neutral or 'natural' position, and the breath is affected to the same pitch either by contracting the passage between the back of the tongue and the soft palate (ɕɬ), or by narrowing the labial aperture. The correspondence may be thus represented:

Guttural.	*Neutral.*	*Labial.*
ɕɬoɭ	ɭ	ɭoɔ.

The modulative order of the vowels and the primary consonants, united into one scale is the following:



Whatever practical use may be made of this scale, the relations it exhibits as inherent in the elementary configurations may be found of some service in securing uniformity of pronunciation of the symbols in different countries. Thus to find the precise quality of the vowel represented by ɭ prolong the consonant ɕɬ, then vowelize or expand and tensify the configuration to remove the friction of the breath; and, keeping the organs in the same position, sound the

voice, and the result will be the vowel]. Or whisper the vowel ɨ (oo), and entirely spread the lips without moving the tongue, and the result will be], or, with sibilation, C]. [See page 75].

The best way to perform such experiments on configurative pitch, will be to listen to the different elements as whispered by another person who does not know the purpose for which he produces the effects: otherwise the subtle *power* of variation before referred to—although all variations are absolutely dependent on changes in the cavity of the mouth—will perplex the ear in its attempts to catch the natural pitch of a configuration. Wide differences will be best appreciated at first. These may be used to test the principle. No person, for example, will be found to whisper the words *way* or *we* with a descent of pitch from *w* to the vowel; or the words *yoke* or *you* with an ascent of pitch from *y* to the vowel; but, on the contrary, every person will be found to whisper any given series of elements with exactly the same relations of pitch, when no special effort is made to accommodate the result to a pre-conceived note.

WHISTLING is another form of modulated whisper. The varieties of pitch in whistling are produced by changes in the cavity of the mouth, of the same kind as those which produce varieties of vowel-sound. A whistle has a well-understood—if a vulgar—expressiveness, and it may not be superfluous to provide a sign for this effect (ᓚ). A whistle with rising modulation is a call of invitation; with falling modulation it is a call of imperativeness.

A whistle formed on the *tongue*—bearing the same relation to ᔓ that the labial whistle bears to ᔕ—may be symbolized by adding the sign of 'inner' formation (ᓚ]). This sound adds an intimation of secresy to the meanings conveyed by the labial whistle.

A whistle formed on the tongue and modified by the lips—symbolized by ᓚ]oᔕ—gives a loud and piercing signal of alarm.

Whistle and *voice* may be blended. The symbol of the combination would be ᓘ.

PRACTICAL APPLICATION OF VISIBLE SPEECH TO LANGUAGES.

THE ELEMENTARY SOUNDS OF LANGUAGES.

The scheme of Letters developed in the preceding pages provides the means of alphabetically representing all languages exactly as they are spoken, or according to any standard of pronunciation.

The symbols have been explained with reference only to the organic adjustments which they represent, and not in connection with the elementary sounds of languages; because the sound intended necessarily results, in every case, from putting the organs in the symbolized position.

The sounds of many of the symbols cannot be exemplified by ordinary letters, or even by key-words, which are so differently pronounced by different speakers; but the relations of the various elements will be perfectly apprehended from an attentive study of the Symbols themselves and the explanatory Diagrams. The effect will be found to be, that when the symbols of *familiar* sounds are known, the sounds of other letters will be deduced from the forms of the letters more accurately than they could be from key-words. [See 'Mode of deducing Foreign Sounds from their Symbols.']

The elementary sounds in actual use in any language may be most conveniently ascertained by tabulation from the utterance of selected speakers; and a standard of the pronunciation of every tongue may thus be fixed for the guidance equally of native and of foreign learners.

Languages also which have never been reduced to writing may now be alphabetized by missionaries and travellers with such uniformity as—whatever the nationality of the writers—to convey a faithful copy of the native pronunciation which readers in all countries will vocalize alike.

It has never hitherto been possible to write a language or dialect in such a manner as to enable a stranger to the language and to the *writer's* native tongue to read the transcript with even an approach to vernacular accuracy. This old 'impossibility' may now be accomplished simply, certainly, and universally.

The scales of sounds may be taught without the use of language as a medium of instruction, and by means only of diagrams and oral exemplifications of the elementary sounds. Thus it will be possible for a missionary or a traveller, who is acquainted with 'Visible Speech,' to write an unknown language as he hears it, and to teach its unlettered speakers to *read* their own tongue, before their instructor himself has learned the meaning of a word.

The difference between many of the elementary sounds, when separately pronounced, may appear to unaccustomed ears too slight to be of importance;

but to those who use the sounds in vernacular speech, the slightest differences are often real distinctions on which intelligibility depends. Each of the oral configurations, when definitely formed, yields a perfectly distinct quality of sound, and the nicest varieties will become appreciable when the configurative differences are clearly apprehended.

A good 'ear' and considerable practice will be necessary to enable a person to analyze new combinations, and to identify foreign sounds, at hearing; but a good ear is in great measure a product of education, and the power of discrimination will become sufficiently common when it is drawn out by exercise. Ordinary learners of 'Visible Speech' do not require any special aptitude. Facility in *reading* will be attained by any person in a very brief period.

Some of the shades of sound distinguished to the eye will, no doubt, at first, be difficult of appreciation by readers unaccustomed to exact observation. The beginner should therefore content himself with associating with their respective symbols such sounds only as he habitually uses and can readily discriminate. The power of minuter discernment will infallibly increase after the eye and the mouth have become familiar with a few of these settled *landmarks* of sound.

There is often, however, a difficulty felt in recognizing familiar sounds when they are heard under unusual circumstances—long instead of short, accented instead of unaccented, and *vice versa*. The reader must lose sight of such habitual associations of accent and quantity, and bear in mind that these accidents are not inherent in any sound. The vowels, for instance, in *ill, ell, at, up, on*, &c., may be prolonged as much as those in *eel, all, ooze*, &c., and the latter may be shortened to any extent, without affecting their essential quality. So, too, the 'obscure' unaccented vowels in plac*es*, cert*ain*, sof*a*, ment*ion*, pict*ure*, &c., may have the fulness and definiteness of accent; and considerable practice is necessary to enable the ear to identify the sounds under the altered conditions. All collated alphabets—that is those which are formed by an aggregation of the elementary sounds discerned in different languages, like the 'Standard Alphabet' of Lepsius, Mr Ellis's 'Palæotype,' &c.—contain repeated entries of the same sounds, under differences only of accent, quantity, coalescence with adjoining elements, &c. In 'Visible Speech,' these elements would, of course, have the same graphic sign.

Examples of the letter-value of the principal 'speech-symbols'—taken, when possible, from English and its dialects—are furnished in the following Tables, which will serve to establish a sufficient number of phonetic 'landmarks' in the reader's mind :—

LETTER-VALUE OF THE PRINCIPAL CONSONANT AND GLIDE SYMBOLS.

CONSONANTS.

Am. American	F. French	Hu. Hungarian	Pec. peculiar	Sp. Spanish
Cock. Cockney	Ga. Gaelic	Ir. Irish.	Po. Polish	W. Welsh
E. English	Ge. German	It. Italian	Sc. Scotch	Z. Zulu.

ⴰ *h*e (E.)	ⴰ (Vowelwhisp.)	ⴰ variety of defective *r*		ⴳ bŭ'er for *butter* (west of Scot.)	
ⴱ na*ch* (Ge.) pe*ch* (Sc.)	ⴱ au*ch* (Ge.) sou*gh* (Sc.)	ⴱ hiss of water-fowl.	ⴱ	ⴱ *c, k, q,* (E.) ⴱ} kind (E.)	ⴱ sink* (E.)
ⴲ i*ch* (Ge,)	ⴲ *s, c,* (E.) ⴲ} *c*iudad (Sp)	ⴲ variety of defective *s*	ⴲ *th*in (E.)	ⴲ variety of *t*	ⴲ variety of *n**
ⴳ theat*r*e (F.) *-rh* (W.)	ⴳ *sh*ow (E.) *ch*aud (F.)	ⴳ temp*le* (F.) felt* (E.)	ⴳ *ll* (W.) *hl* (Z.)	ⴳ *t*ie (E.)	ⴳ tent* (E.)
ⴴ variety of *f* or *wh*	ⴴ *wh*y (E.)	ⴴ *f*ie (E.)	ⴴ gutturalized variety of *f*	ⴴ *p*ie (E.)	ⴴ lamp* (E.) m*h*m ! (Sc.)
ⴵ ta*g*e (Ge.) ⴵ} zei*g*e (Ge.) ⴵ} burred *r*	ⴵ var^ty. of *g* (Ge.) and of defective *r* (E.)	ⴵ *l*aogh (Ga.) barred *l* (Po.)	ⴵ labialized variety of Gaelic *l*	ⴵ *g*o (E.) ⴵ} *g*uide (E.)	ⴵ si*ng* (E.)
ⴶ *y*es (E.)	ⴶ *z*eal (E.) ⴶ} *d*, final (Sp.)	ⴶ *ll*ano (Sp.) *gl*i (It.)	ⴶ *th*en (E.)	ⴶ Ma*g*yar (Hu.)	ⴶ Boulo*gn*e (F.)
ⴷ *r*ace (E.) ⴷ} *r* (Sc. Sp. &c.)	ⴷ plea*s*ure (E.) *j*our (F.)	ⴷ *l*ie (E.)	ⴷ *dhl* (Z.)	ⴷ *d*ie (E.)	ⴷ si*n* (E.)
ⴸ *w*eg (Ge.) *b*, (Sp.)	ⴸ *w*ay (E.)	ⴸ *v*ie (E.)	ⴸ gutturalized variety of *v*	ⴸ *b*uy (E.)	ⴸ see*m* (E.)

* The nasals, and also l, before non-vocal consonants, are often pronounced without vocality. The exact effect of the English compounds in *felt, ink, tent, lamp,* &c., includes both the vocal and the voiceless *l, m, n,* &c. Thus :—

ⴸⵏⴷⴷⴳ, ⵏⴵⴱⴱ, ⴳⵏⴷⴳⴳ, ⴷⵏⴸⴳⴳ.

The voiceless elements, however, do not require to be written in such words. [See 'Imperfect and Variable Vocality of Consonants.']

GLIDES.

> p'aper (Ir.)	I va'ry (E.)	I now (Am. & Cock.)	I are (pec.)	I are (smooth burr)	I our (s. burr labialized)	I die (E.) day (E)	I new (North Ir.)	I are (E.)	I our (E)	I lui (F.)	I now (E)

LETTER-VALUE OF THE PRINCIPAL VOWEL SYMBOLS.

1	1	1	1	1	1
laogh (Ga.)	first (Am.) 1 [bI] (Russ.)	il (F.) 1 eel (E.) 1 fille (F.)	-tion* } -tious } (E.)	-shire (E.) -es (pl.) (E.)	ill (E.) 1 new (Am.)
1	1	1	1	1	1
up (E.) 1 urn (E.)	que (F.) 1 zeit (Ge.) 1 un (F.)	et (F.) 1 day (Sc.) 1 day (E.)	ask (E.) mann (Ge.) 1 high (E.) 1 how (E.)	a [article] (E.) -al } -ance } (E.) 1 day (Cock.)	ill (Sc.) -ment } -ness } (E.) 1 air (E.)
1	1	1	1	1	1
up (Sc.) 1 out (Sc.)	sir (Prov.)	ell (E.) 1 ell (Sc.) 1 vin (F.)	man (Sc.) 1 psalm (E) 1 are (E.) 1 kaiser (Ge.) 1 haus (Ge.)	1 err (E.) up (Cock.)	man (E.) 1 papa (Ir.) 1 eye (Sc.) 1 now (Cock.) 1 our (Cock.)
1	1	1	1	1	1
book (Sc. 1 pool (E.) 1 ū (E.)	u (Sw.)	uber [1] (Ge)	to, good (E.) 1 poor (E.)	-ure (E.) 1 do (Am.)	boot (noun) (Sc.)
1	1	1	1	1	1
home [1] (Sc) 1 home (E.)	homme (F.) 1 on (F.)	une (F.)	-ough (E.) chaud (F.) 1 ore (E.)	stone (Am.) note (Sc.)	jeu (F.) boot (v. imp behooved) (Sc.)
1	1	1	1	1	1
all [1] (E.) 1 war (E.)	sir (Ir.) 1 I (Ir.) 1 en (F.)	beurre [1] (F.)	on (E.) 1 or (E.) 1 boy (E.)	ask (Cock.) not (Ir.)	I'll (Sc.) 1 out (Cock.)

* Syllables preceded by a hyphen are unaccented terminations.

MODES OF TEACHING THE UNIVERSAL ALPHABET.

Teachers should, of course, be perfectly familiar with the Theory of the Alphabet, as well as competent to exemplify all the elementary sounds, and to recognise them with certainty when heard. Learners may be introduced at once to the symbols.

The teaching of the symbols for vernacular sounds can in no case be attended with difficulty; and illiterate learners may begin to read with their first lesson. A plan of instruction applicable to children and illiterate adults is shown in a subsequent section.

For other learners a different method will be preferable. The *names* of the letters should first be taught, independently of sounds. When the names of all the vowels and consonants are known—which, with oral teaching, will be in a few minutes—the symbols of familiar sounds should be pointed out, and the learner should repeat the pronunciation of these until he becomes conscious of the organic actions by which he forms the sounds; and of the correspondence of the actions with those which he specifies in naming the letters. The relations of the symbols will, in this way, be speedily felt, and the plan of the Alphabet will be fully comprehended long before the whole of the sounds which the learner habitually makes have been associated with their symbols.

The pronunciation of foreign sounds will not, of course, be so easy as the discrimination of their letters; but after the principle of symbolization has been comprehended in connection with native sounds, the 'visible' relations of foreign to native sounds will be of the greatest possible assistance to the learner in forming his mouth for unfamiliar elements. In most cases it will be found that unknown sounds will reveal themselves with a fair approximation to accuracy at the first effort, by means of their relation to sounds which are known. [See 'Mode of Deducing Foreign Sounds from their Symbols.']

A simple method of teaching the names of the vowels and consonants will be by means of four cards containing the four 'stems:'

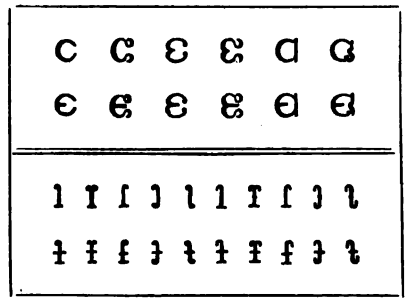
with separate adjustible slips showing the requisite 'definers:'

By revolving the two Consonant Cards—with 'mixed,' 'shut,' 'nasal,' or 'voice' signs attached—the organic varieties of each elementary action will be exhibited; and by shifting the vowel 'definers' to the right or left of the two vowel 'stems,' and inverting the Cards, all the varieties of vowel formation will be presented to the eye.

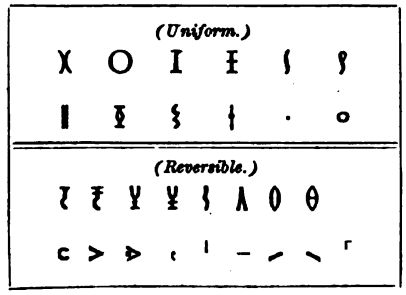
Another mode—perhaps the best for teaching the *sounds*—will be by means of a set of twelve square cards for the consonants and of twenty oblong cards for the vowels. As the teacher turns the symbols individually, the learner will form his mouth accordingly, and pronounce the sounds. The 'glides,' 'modifiers,' and other symbols, may be similarly printed on separate cards, and their value explained as they are brought into use. But the attention of beginners should not be taken up with symbols which are not to be immediately brought into application.

These methods are adapted for the simultaneous instruction of large numbers of learners.

A single card containing all the symbols for Vowels and Consonants may be conveniently used in teaching single pupils or small classes. The following arrangement will present the alphabet of 88 elements as the Card is turned:—



The Glides and other symbols may be printed on the back of the card. Thus:—



In teaching foreigners, the instructor will make use of the Physiological Diagrams to communicate the organic relations of the symbols. By placing his own organs in the positions symbolized, he will pronounce the sounds for the learner's imitation;—always beginning with familiar sounds. In this way persons of ordinary intelligence may be taught to read 'Visible Speech' without the use of language as a medium of instruction.

The Deaf and Dumb will be readily taught to adjust their organs in accordance with the symbols, and consequently to *speak*. Their pronunciation may not at once have the full variety of ordinary utterance; but, without minute accuracy, it will be sufficiently definite for intelligibility, and it will undoubtedly improve, as a *feeling* of the organic positions becomes developed by exercise. The Deaf and Dumb should practise before a glass, to get the assistance of the eye as much as possible in directing the organs.

The Alphabet will, it is believed, be found to be peculiarly adapted for tangible reading by the Blind. The quick perceptions of touch and ear usually manifested by the Blind should enable such learners to pronounce foreign languages with great accuracy from the symbols.

Persons who suffer from Stammering or other Impediments of Speech, or who fail to pronounce any of the elementary sounds correctly, will find a special value in the symbols of 'Visible Speech.' A knowledge of the true actions of utterance, and an exact perception of the organic errors of impediments, are the foundation of all power over such affections, and the basis of every rational system for the removal of Impediments and Defects of articulation. In the mode of applying this knowledge, much, of course, depends on individual ability and experience on the part of the teacher; but the knowledge itself is of the first importance to the learner, and this knowledge the symbols communicate.

TYPOGRAPHY OF VISIBLE SPEECH.

The possibility of representing the organic actions of speech by the revolutions of Single Radical Symbols was originally suggested by the fact, that the elementary sounds of languages are produced mainly by the evolutions of a single organ—the tongue. In 'Visible Speech' typography, this mono-symbolic principle is carried out with an effect which is practically the same to the eye by whatever number of types the printing may be executed. The consonant-forms 'Back,' 'Front,' 'Point,' 'Lip,' for instance, whether printed from one

type or from four types, are merely revolutions of one symbol; and in like manner all the 'Shut,' 'Nasal,' 'Divided,' aud 'Mixed' Consonants are revolutions of a single symbol for each of the varieties.

It would be possible to print all languages from a number of types corresponding to that of the Radical Symbols [see page 35]; but the effect would be confusing to the eye, and otherwise objectionable. Convenience requires that all elementary sounds—whatever number of 'rudimental symbols' they may involve—should have their organic and other constituent signs embodied in individual 'letters.' Thus: 'Front-mixed-divided, voice' (*th* in *these*); 'High-back-wide, round' (*oo* in *poor*); 'Low-back-wide, round' (*o* in *on*); have their four symbols combined in their respective alphabetic characters. Even with these combinations, the number of types required for universal printing does not exceed that in a common English 'fount' of Roman letters.

To exhibit the alphabetic symbols in the present Work, the *Fifty-two* Consonants have been printed from *Sixteen* types; the *Thirty-six* Vowels from *Twenty* types; and the *Twelve* Glides from *Eight* types. In this arrangement, however, the letters are all of equal height, and they consequently have the effect of capitals. On this principle the symbols are well adapted for mixed Romanic and Speech printing, as they stand out very clearly on a page of the smallest Roman type; but for speech-printing by itself a 'lower-case' alphabet would be preferable. This is obtained by casting the Consonants on oblong instead of square bodies; the number of additional types required being twelve. The aspect which the letters will present when printed from a 'lower-case' fount is illustrated in the Lithographed Examples.

The latter method presents several important advantages: it saves space, gives a pleasing variety to the typography, and is more convenient to the printer, as well as more perspicuous to the reader. In both modes, the forms of the letters are identical; but in 'lower-case' printing the vowels ascend or descend beyond the line of the consonants, and the eye is thus emphatically informed of the number of *syllables* in every word.

A fount of 'capitals' added to a 'lower-case' fount would need only thirty-six extra types, as the 'glides' and 'modifiers' would not require to be cast in duplicate. But capitals may be altogether dispensed with. A simple sign (/) may be used instead, to distinguish the first word of a sentence, or to show proper names, &c. [See 'Visible Speech Writing.']

The simplicity of this Typic Alphabet will be manifest by comparison with the 'Standard Alphabet'. of Professor Lepsius, as used by the Church Missionary Society. The latter alphabet consists of Roman and Greek letters, varied by the addition of diacritic marks. Seventeen diacritics are used above, and fourteen are used below the body of the letters; so many as three diacritics being in some cases applied to a single body. The number of 'lower-case' letters thus employed exceeds 280, and of these above 200 require to be 'cut' for every fount used. But even with this cumbrous typography, the 'Standard Alphabet' is not complete, and its letters are only arbitrarily associated with their sounds. Some of the diacritics, indeed, have a uniform physiological value, but the bulk of the letters—as in all other alphabets—directly tax the learner's memory; and the relations of sounds cannot be discovered from their symbols. This source of difficulty—"as old as written language, and an obstacle which has seemed to inhere in the nature of writing itself"*—is effectually removed by 'Visible Speech.' In this respect the system stands alone: so that even if an alphabet capable of representing all possible shades of sound could be formed on the basis of old alphabets, and even if the number of its letters did not exceed that of the Visible Speech Alphabet, the latter would still have immeasurably the advantage; because the sound of every symbol is deducible from the form of the symbol itself, without any encumbrance to the reader's memory. In the words of an eminent critic of the system: 'A great many attempts have been made to spell words, but Visible Speech spells spelling.'*

All the ordinary marks of punctuation and reference may be employed as usual.

Various forms of typography of the system are illustrated in the Plates at the end of the volume.

VISIBLE SPEECH WRITING.

In adapting the Alphabet for current writing, the print-forms of the letters have been so closely preserved that a learner who has mastered the one will have no difficulty in familiarizing himself with the other. The Script Symbols, as shown in the Plates, produce a flowing and elegant caligraphy, easily written and easily read. The arrangement was arrived at after much experiment, and

* See Article from the 'Athenæum,' page 29.

it has been tested for a considerable period in the writing of several languages. Care has been taken to avoid ambiguous lines, and distinctions depending on 'dots' and 'strokes,' as in the *i* and the *t* of the common script alphabet. With the exception of the 'Rounded Glides,' each character is conveniently written without lifting the pen.

The following Principles of Symbolization are introduced in the Script Alphabet :—

I. *Voiced* Consonants and *Primary* Vowels are distinguished by a *loop* formed in the 'hair-stroke' of the letters. Characters without a loop are therefore 'voiceless' consonants, or 'wide' vowels.

II. *Rounded* Vowels have a *bend* or hook in the 'body-line' of the letters. The 'round glides' alone preserve the 'cross-stroke' of the print symbols.

III. *Nasal* Consonants have the ordinary nasal sign, written horizontally. In the case of the 'front' (and 'point') 'shut' (and 'nasal') consonants, the 'voice-loop' is not *added* to the 'voiceless' forms; but, for simplicity, the 'organic symbol,' in these letters, is held to *include a loop*, when it is formed by *crossing the body-line* of the letter.

In the case of the 'front' (and 'point') 'divided' consonants, the 'voice-loop' might have been inserted in the centre of the symbol—as in the 'back' (and 'lip') 'divided' consonants—so as to save a motion of the pen; but symmetry and perspicuity in combinations, have been preferred to mere brevity. The writing of English is, notwithstanding, one-fifth shorter than in common long-hand.

Initial letters are distinguished as 'capitals' by a stroke (/) prefixed. In *hand*-writing this sign may be limited to *Vowels*, because the consonants admit of being written, *ad libitum*, on a larger scale for 'capitals'—as in common writing.

The Script Alphabet is composed of a remarkably small number of *forms*, being, in this respect, even simpler than the Print Alphabet; and in both sets of letters the symbols are uniformly *reversible* to show the organic relations of the different elements. Thus :—

Lip-Consonants	are the reverse of		Back-Consonants.
Point-Consonants	"	"	Front-Consonants.
Front-Vowels	"	"	Back-Vowels.
Low-Vowels	"	"	High-Vowels.

The only exception to this arrangement is in the case of the 'front-mixed' and 'point-mixed' consonants, which are necessarily varied, because the 'pot-hook,' which is their appropriate organic sign, presents no difference of shape when inverted. Otherwise the number of types required to 'letter-press' the Script Alphabet corresponds exactly to the number in 'lower-case' printing.

The vowels, it will be observed, are represented in script by a *single* symbol for each *class* of vowels; the varieties of 'high,' 'mid,' and 'low,' in each class, being shown by the mere ascent and descent of the lines. The same principle might, of course, be applied to the other alphabet, for 'lower-case' printing; the different positions of the 'definers' to mark 'high,' 'mid,' and 'low' varieties in the 'capital' alphabet, being only necessary with letters of equal height. In this way the vowel scheme of thirty-six elements might be completely presented in 'lower-case' print, by no more than twelve symbols.

The Script Alphabet would itself form an excellent 'lower-case' alphabet for general use. The characters would, of course, have the slope of *italics*, or of *Greek* letters; but they would be learned, by beginners, almost as easily as the other symbols, and their employment in general printing would be attended with this advantage that the letters in *hand-writing* and in *press-printing*, would in all points exactly correspond. The aspect of the Script Symbols, as they would appear in letter-press, is shown in one of the Plates.

VISIBLE SPEECH TELEGRAPHY.

The indefiniteness of ordinary letters is productive of much inconvenience in international Telegraphy. Messages cannot be transmitted in their original languages through foreign countries, but, for the convenience of operators, must be translated,—of course at the serious risk of error, and to the entire destruction of verbatim accuracy. The system of 'Visible Speech' will render the telegraphing of words through any country equally certain and easy, in all languages. The operator, while he may not understand a syllable of the writing, will transmit the *ipsissima verba*, and the very sounds of the original, as a *viva voce* utterance to the receiver.

In connection with Printing Telegraphs, no special training will be required by the operator; as the new types are 'composed' side by side in the same manner as ordinary types. A glance at the Table will show that the characters, when properly arranged, will be unmistakably selected with facility by the merest novice.

For Needle Telegraphs which communicate arbitrary signs, dial, and other instruments, the 'Visible Speech' symbols must, of course, be associated with a sufficient code of signals. The symmetrical tabulation into which the symbols naturally fall renders transmission by serial *numbers* extremely simple. Two numbers must be signalled for each letter;—the first referring to the *column*, and the second to the *line* where the letter stands in the Telegraphic Table. The numbers 1 to 12 denote, in this way, the places of all the symbols, and leave ample room for punctuation, and for other necessary or convenient signs.

Telegraph clerks who become expert at *sounding* the symbols, will soon be enabled to act as receivers and deliverers of messages for the convenience of those who cannot put their words into Visible Speech, or decipher them from the symbols. Thus it should ultimately be possible for a stranger to enter a Telegraph Office, pronounce his message, and have it despatched in his mother-tongue by one totally ignorant of the import of the sounds; and for the receiver of the message to hear it intelligibly pronounced from the writing by an official equally unacquainted with the meaning of what he reads.

The following is the arrangement of the symbols for a complete

COSMOPOLITAN TELEGRAPHIC TABLE.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1.	C	C	C	C	I	1	I	I	O	'		
2.	C	C	C	C	I	1	1	I	0	'		
3.	C	C	C	C	I	I	I	I	X	'		
4.	C	C	C	C	I	1	I	I	'	'		
5.	C	C	C	C	I	1	1	I	'	·		
6.	C	C	C	C	>	I	I	I	o	<		
7.	C	C	C	C	I	1	I	I	'	▸		
8.	C	C	C	C	I	1	1	I	θ	◂		
9.	C	C	C	C	I	1	I	I	'	c		
10.	C	C	C	C	I	1	I	I	'	ɔ		
11.	C	C	C	C	I	1	1	I	ʌ	▮·		
12.	C	C	C	C	I	I	I	I	V	o		

Plan of the foregoing Table.

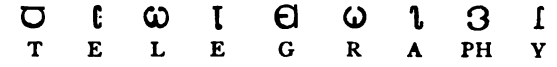
Column.		*Line.*
1 to 4.	Consonants,	1. to 6. Voiceless.
		7. " 12. Vocal.
5.	Glides,	7. " 12. Round.
6 to 8.	Vowels.	
9, 10.	Aspirates and Modifiers.	
11, 12.	Punctuation and Special Signs.	

Example.

*4-9, 8-4, 2-8, 8-4, 4-11, 3-9, 10-2, 2-2, 4-5, 8-1, 10-2, 3-5, 3-2,

V I S I B L E S P E E C H

3-5, 8-5, 3-9, 8-3, 1-11, 3-7, 7-5, 4-3, 8-4.



T E L E G R A PH Y

Proposed Needle-Signals for Numbers.

The Signals at present in use will perfectly suffice for the transmission of Visible Speech. The first twelve of the ordinary alphabetic signs may be used to express the *columns*, and the second twelve the *lines* of the Table. But a simpler code of signals may be substituted. The following is proposed :—

[Needle to Left ↖, Needle to Right ↗.]

1	2	3	4	5;	6	7	8	9	10;	11	12
↖	↖↖	↖↖↖	↖↗	↗;	↗	↗↗	↗↗↗	↗↖	↖;	↗↖	↖↗

---

* The first number refers to the column, and the second to the line, in the Table. Thus: 4-9 [col. 4: line 9]

PRACTICAL TESTS.

The practical effect of the principle of 'Visible Speech' may be thoroughly tested by means of the examples furnished in the next page, and at the end of the volume. All readers who master the principle of symbolization in connection with any language, should vocalize these words and sentences with perfect *uniformity*. The illustrations have been selected from the tests dictated in the course of the experiments referred to at page 19. The examples embrace such a wide range of phonetic elements, that the reader who can pronounce these with accuracy will have little to learn in connection with the utterance of any tongue.

The Vocabularies of Test Words are arranged with the initial letters in alphabetic order, to exemplify the proper classification of the elements for works of reference. The first of these lists is printed from the experimental types; but, in order to show the different modes in which the symbols may be presented to the eye, the other illustrations are given in Plates at the end of the volume.

The alphabetic order of the Consonants is:—

1. Throat; 2. Back; 3. Front; 4. Point; 5. Lip.

The varieties of each Organic class follow the order:—

1. Primary; 2. Mixed; 3. Divided; 4. Mixed Divided; 5. Shut; 6. Nasal.

The 'voiced' consonant of each species immediately follows the 'voiceless' element of the same mechanism.

The Vowels are correspondingly classified:—

1. Back; 2. Mixed; 3. Front; 4. Round.

The 'wide' sounds of each Organic class immediately follow the 'Primary' sounds of the same mechanism.

The elements in each class of Vowels follow the order:—

1. High; 2. Mid; 3. Low.

The Illustrations in the Plates include, besides English in various forms, a number of foreign and dialectic sentences. A large proportion of the latter are selected from the Scottish Dialects, which are particularly rich in *sounds*, and consequently difficult to unaccustomed organs. A Caledonian ear may be found in every quarter of the globe, so that readers may have the means of readily testing the accuracy of their phonetic essays in connection with these sentences. But the *experimentum crucis*, applicable everywhere, is *uniformity* among different readers.

ALPHABETIC VOCABULARY OF TEST WORDS.—*Initial Vowels.*

⠁⠉	⠁⠺⠊⠣⠁⠕ (Sc.)	⠓⠁ ⠠⠁ ⠓⠁ (Sc.)
⠁⠕⠠⠣⠊⠺⠁ (Sc.)	⠁⠎⠠⠕⠍⠺ (F.)	⠓⠙⠺⠊⠣⠁⠎⠕(Pro.)
⠁⠍⠠⠺⠊⠣⠁	⠁⠏⠠⠎⠍⠊⠕⠺⠊	⠓⠕⠎-⠺⠕-⠠⠺⠎
⠊⠉	⠁⠊⠣⠺⠊⠺⠎ (Sc.)	⠓⠊⠕⠣⠁⠺ (Prov.)
⠁⠠⠙⠊⠺⠍⠁⠺ (Sc.)	⠁⠊⠕⠺⠊⠣⠺⠓⠉ (Sc.)	⠓⠽⠠⠣⠺⠁⠓
⠚⠺⠠⠣⠊⠣⠁	⠁⠺⠕⠊⠠⠎	⠓⠺⠍⠊
⠚⠙⠁⠽*	⠊⠙⠓	⠋⠺⠍⠋
⠚⠙⠠⠺⠊⠣⠊⠉⠁	⠊⠺⠓⠠⠕⠊⠓	⠋⠙⠓⠊
⠚⠕⠽⠊⠕⠽⠠⠍⠓⠕⠽⠊	⠊⠎⠕⠊⠽⠠⠋⠣⠊⠓	⠋⠕⠠⠍⠊⠓⠊⠓
⠚⠽⠕⠽⠓⠽⠕⠽⠊⠎⠕⠣⠋⠠⠣⠊⠓⠺	⠊⠑⠓⠣⠊⠺⠍⠊	⠋⠣⠽⠓⠊⠕
⠚⠺⠕⠠⠑⠓⠊⠺⠓⠊⠽⠙ (Ga.)	⠊⠠⠑⠊⠽⠣⠓⠺⠊⠊	⠓⠽⠎ (Am.)
⠚⠎⠄⠊	⠊⠉⠺⠊⠠⠣⠊⠉⠺⠓ (Sc.)	⠞⠣⠙⠺⠓ (Ir.)
⠚⠓⠊⠊ (Sc.)	⠊⠓⠣⠺⠊ (Sc.)	⠞⠽⠙⠺ (F.)
⠊⠽⠎ (Am.)	⠍⠺⠎⠠⠙⠊⠍⠺⠊⠙⠊	⠓⠣⠺⠊-⠣⠓⠙ (Ir.)
⠺⠺⠠⠏⠉ (Sc.)	⠍⠙⠎⠍ ⠺⠊⠙⠎⠊⠕	⠓⠽⠺⠊⠎⠕ (Prov.)
⠺⠕⠎⠠⠕⠪⠊⠺⠎⠺⠕⠉⪦	⠍⠺⠙⠍-⠣⠊⠺⠊ (Sc.)	⠞⠓⠙⠊⠺ (Prov.)
⠺⠉⠠⠣⠙⠓⠺	⠍⠎⠠⠕⠚⠊⠞ (Port.)	⠓⠺⠣⠉⠊⠣⠊⠕ (Sc.)
⠊⠽⠎	⠍⠺⠽⠠⠣⠚⠓⠙⠊⠣ (Sc.)	⠓⠺⠎⠙ (Cock.)
⠊⠓⠣⠺⠊⠺⠕	⠍⠣⠺⠞ (Sc.)	⠓⠠⠙⠚⠽⠺⠊⠺ (Colloq.
⠠⠺⠊⠪⠞⠊⠣⠊⠎ (Sc.)	⠍⠺⠽	⠋⠓⠣⠺ (Ge.)
⠙⠎⠠⠽⠙⠊⠺⠚⠺⠎ (Sc.)	⠍⠺⠚⠠⠽⠙⠊⠣⠚⠎	⠞⠺ (F.)
⠞⠣⠓⠠⠺⠊⠣⠎	⠊⠓ ⠠⠽⠓⠺ (Sc.)	⠓⠎⠉⠚ (Sc.)
⠞⠠⠙⠊⠣⠊⠉⠚	⠓⠕⠚⠣ ⠺⠓⠠⠙⠞⠓	⠓⠓⠽ (F.)
⠊⠽⠎	⠓⠓ ⠠⠚⠊⠊ (Sc.)	⠓⠓ ⠣⠺ ⠙⠋⠉ (Sc.)
⠊⠺⠞⠎⠕	⠓⠙⠺⠠⠎⠊⠺ (Manx)	⠋⠠⠙⠎⠓⠺⠙⠋⠺
⠊⠓⠣⠺⠊⠺⠊⠎ (Cock.)	⠓⠺⠍⠓	⠋⠠⠺⠊⠙⠊⠍⠊⠣
⠋⠣⠊⠣⠠⠙⠊⠓⠏	⠓⠕⠋⠉⠊⠙⠓⠺⠊⠠⠽⠓	⠋⠠⠺⠓⠊⠎ (F.)
⠋⠺⠕⠎⠓⠙⠠⠺⠊⠓⠕⠓ (It.)	⠚⠉⠕⠺⠠⠽⠊⠉⠕⠋	⠓⠽ ⠠⠺⠓⠺ (Sc.)
⠋⠺ ⠙⠓⠽⠊⠺⠠⠕⠣⠊⠎⠓⠺⠊⠍⠺⠋ (It.)	⠚⠋ ⠠⠚⠋ (Sc.)	⠓⠺ ⠠⠓⠺⠺ (Cock.)

* The accent is on the first syllable, unless otherwise expressed.

VISIBLE SPEECH
APPLIED TO ENGLISH.

VISIBLE SPEECH APPLIED TO ENGLISH.

The purpose of this Work is served when the details of the system are presented with completeness, so as to enable orthöepists in different countries to define their various native sounds, and to tabulate the appropriate physiological symbols into a standard alphabet.

Many syllabic sounds are matters of dispute, and are variously analyzed by different authorities. The readiest way to settle all such questions will be to symbolize the exact utterance of some approved speakers, and from a comparison of the independent pronunciations of two or three such selected oralists to fix the alphabet for Visible Speech printing.

The characteristic sounds of individual languages must obviously be thus discriminated from native utterance ; and there will be a manifest advantage to international consistency in the application of the physiological symbols, from having a series of alphabets constructed by the same symbolizers. The attention of British, American, and Foreign Academies is directed to the desirability of adopting this method of obtaining a complete tabulation of their national sounds, for the use of native as well as of foreign learners.

The Author's professional familiarity with the native sounds of English, enables him to furnish a Standard English Alphabet, which may be accepted, in the meantime, as conveying a faithful representation of vernacular usage. The scheme will also serve as a model which may be followed in the arrangement of other local alphabets.

TABLE OF ENGLISH ELEMENTS,

SHOWING THEIR POSITION IN THE UNIVERSAL ALPHABET.

CONSONANTS.								VOWELS.*					
Back.	Front.	Point.	Lip.	Key Words.				Back.	Mixed.	Front.	Key Words.		
										ſ			see ear
	๓	ω			yes	race		ɿ		ʃ	up urn		say
	๘	ʊ	ɔ		so	show	why			ɭ			ell
	๙	ʊ	ə		ooze	rouge	we	ɿ*	ɪ*	ſ	-tion -tious -er	the -es	ill
			ɜ				few	ɿ	ɭ	ʃ	ask	a -al -ance	air -ed -ment
		ω	ɜ			lay	view	ɿ	ɪ	ɭ	ah arm	err	an
	๓				thin			ɨ			pool		
	๓				then			ɨ			go		
ɑ		ʊ	ɒ	key		tea	pea	ɨ			law		
ɛ		ʊ	ɒ	gay		day	bay	ɨ	ɨ*		poor good	-ure -ful	
								ɨ	ɨ*		ore	-ory	
ɛ		ʊ	ɒ	sing		sin	him	ɨ	ɨ*		on or	-or -ward	

ASPIRATE, GLIDES, AND MODIFIERS.

O	I	ɨ*	ʌ	ɣ	ɣ*	ɨ	ɨ	ɨ	ˈ
he high	weary fiery	now out	boy fie day	air sir arm	our	know soul now	kind girl	*long*	*accent*

* The sounds marked * occur only in unaccented syllables, and in colloquial speech.

ENGLISH PRONUNCIATION.

The irregularities of Letters have made the mere deciphering of English words a work of difficulty to learners; and the accurate pronunciation of the language has become a special art, the teaching of which has called into existence an extensive literature of phoneticised Vocabularies and Dictionaries. 'Visible Speech' furnishes a simpler—in fact, the simplest possible—key to Orthographic Reading. The use of the system for this purpose will be attended with the advantage that pronunciation will be taught with certainty and uniformity, according to any standard—whether scholastic, colloquial, or dialectic—without in any way interfering with ordinary letters, or unsettling the aspect of words to the eye, as by phonetic spelling.

The following Table exhibits the English Sounds in connection with their various 'orthographies.' The pronunciations indicated exemplify the varieties of accentual and unaccentual utterance, according to *colloquial*—but not vulgar—usage:—

THE SOUNDS OF ENGLISH LETTERS, AND 'ORTHOGRAPHIES' OF ENGLISH SOUNDS.

CONSONANTS.

Speech Symbols. *Equivalent Orthographies.*

.....h, wh; *in* hole, whole.

.....c, cc, cch, ch, ck, cq, cqu, gh, k, ke, kh, lk, q, qu, que, x (ks, ksh); *in* can, account, Bacchus, character, back, acquit, lacquer, hough, kill, lake, khan, walk, quit, quay, pique, tax (), anxious ().

.....c, k; *in* card, kind.

.....ckgu, g, gg, gh, gue; *in* blackguard, leg, egg, ghost, plague.

.....g, gu; *in* girl, guard, guide.

.....n, nd, ng, ngue; *in* ink, handkerchief, song, tongue.

.....e, i, j, u (yoo), y; *in* righteous, pinion, hallelujah, use, you.

.....c, ce, ps, s, sc, sch, se, ss, tzs; *in* cell, ice, psalm, sale, science, schism, base, loss, britzska.

Speech Symbols.

ᘓ.....ce, cz, ds, s, sc, se, sh, ss, x, z, ze, zz ; *in* suffice, Czar, Windsor, as, discern, ease, dishonour, scissors, xystus, zeal, baize, buzz.

ᘔ.....h, phth, th, tth ; *in* eighth, apophthegm, thing, Matthew.

ᘕ.....th, the ; *in* then, breathe.

ᘖ.....r, rh, rr, rrh ; *in* race, rhubarb, mirror, myrrhine.

ᘗ.....c, ch, chs, psh, s, sc, sch, sh, ss, t ; *in* ocean, chaise, fuchsia, pshaw, tension, conscience, schedule, shame, omission, nation.

ᘘ.....g, ge, j, s, ss, t, z ; *in* giraffe, rouge, jambeaux, vision, abscission, transition, azure.

ᘙ.....gl, l, le, ll, ln, sl, sle ; *in* seraglio, late, tale, all, kiln, island, isle.

ᘙ|.....le, tle ; *in* apple, castle.

ᘚ.....bt, ct, cht, ed, ght, phth, t, te, th, tt ; *in* debt, indict, yacht, stopped, bought, phthisic, at, late, thyme, cottage.

ᘛ.....bd, d, de, dd, ddh, ld ; *in* bdellium, sad, bade, add, buddhism, would.

ᘜ.....dn, gn, hn, kn, mn, mp, n, ne, nn, sn, sne ; *in* Wednesday, sign, John, know, hymn, compter, dun, done, inn, puisne, demesne.

ᘜ|.....on, ten ; *in* button, fasten, softening (when a trisyllable).

ᘝ.....wh ; *in* what.

ᘞ.....o, u, w ; *in* one [ᘞ]ᘜ], quick, suite, way.

ᘟ.....f, fe, ff, ft, gh, lf, ph, phe, pph ; *in* leaf, safe, staff, soften, laugh, half, physic, ouphe, sapphire.

ᘠ.....f, ph, v, ve, zv ; *in* of, nephew, vain, save, rendezvous.

ᘡ.....gh, lfp, p, pe, ph, pp ; *in* hiccough, halfpenny, pay, tape, ophthalmia, tippet.

ᘢ.....b, bb, be, pb ; *in* crab, ebb, globe, cupboard.

ᘣ.....chm, gm, lm, m, mb, me, mm, mn, sme ; *in* drachm, paradigm, calm, aim, lamb, same, common, condemn, disme.

ᘣ|.....m ; *in* chasm, rhythm.

VOWELS AND GLIDES.

Speech Symbols. *Equivalent 'Orthographies.'*

ɔ.....o, oo, ou, u, wo ; *in* done, blood, young, up, twopence. [In unaccented syllables, generally changed to ɵ].

ɔɣ.....or, our, ur ; *in* word, journey, furnish. [Variously pronounced ɵɣ, ɪɣ (Cockney), ɔɷ (Scotch), ɨɣ (Irish).]

ɵ.....(for ɔ unaccented), eo, io, iou, o, oa, oi, ou, ow ; *in* dungeon, motion, conscious, abandon, cupboard, avoirdupoise, honour, bellows (noun).

ɵɣ.....(for ɪɣ unaccented), er, ir, wer, yr ; *in* paper, circuitous, answer, martyr.

ɔɬ.....a, au ; *in* ask, path, half, chant, aunt. [Variously pronounced ɟɬ, ɨɬ, (Cockney), ɫɬ (Scotch), ɭɬ (Irish).]

ɔ.....(for ɟ unaccented), a ; *in* artistic, participate, cartoon.

ɔʎ.....eigh, ey, eye, i, ie, igh, ui, uy, y, ye ; *in* height, eyeing, eye, time, tie, nigh, guide, buy, by, rye. [In unaccented syllables, generally changed to ɾ, as in infinite, futile ; otherwise, pronounced ɫʎ, as in like*wise*].

ɔʎɣ.....ire, yre, oir ; *in* fire, lyre, choir. [In liar, pliers, prior, &c., the sound heard is dissyllabic (ɔʎɫɣ, ɔʎɵɣ, ɔʎɨɣ, &c.)]

ɔʎɪɷ.....ir, ier, &c. ; *in* wiry, fiery, &c.

ɔʡ.....o, ou, ow ; *in* compter, thou, now. [In unaccented syllables, generally changed to ɔ (or ɵ), as in conscious ; otherwise pronouuced ɫʡ, as in outshine].

ɔʡɣ.....our, ower ; *in* hour, power. [In unaccented syllables, generally changed to ɔ (or ɵ), as in honour ; otherwise, pronounced ɔɣ, as in ourselves.

ɔʡɪɷ.....(or ɔʡɷ), owery, &c. ; *in* dowery, flowery, showery, &c.

ɟɬ.....ah, al ; *in* ah, palm, salve.

ɟɣ.....ar, er, ear, uar ; *in* hard, clerk, heart, guard. [In unaccented syllables, pronounced ɔɣ, as in barbarian ; in terminations, generally ɫɣ, as in altar, grammar, particular.]

ɟɪɷ.....(or ɟɬɷ), arr, &c. ; *in* starry, tarry (adjective).

ɟʎ.....ai, ay, aye ; *in* aisle, ay, ayes. (In näive, näiveté, the sound heard is dissyllabic (ɟɾ).]

ɪ.....a, ai, e ; *in* cabbage, certain (see ɾ), the, pretty, places (noun).

ɫ.....(for ɔ unaccented), *as in* ana, aside, away, identify, mountaineer ; for ɭ, unaccented), *as in* annoy, appear, assist, capital, chapman,

Speech Symbols.

distant, instance; and (ꞁꞅ for ꞁꞅ, in terminations), *as in* peculiar, notary, &c.

ꞁꞅ .....er, ear, ir, yr, uer; *in* prefer, earnest, firm, myrrh, guerdon.

ꞁꞇ.....e, ea, ee, e'e, ei, eo, ey, eye, i, ie; *in* eve, eat, see, e'en, conceive, people, key, keyed, fatigue, field.

ꞁ.....æ, e; *in* minutiæ, before, decide, erect, return secure.

ꞁꞅ.....ear, eer, ere, e're, ier; *in* near, beer, here, we're, pier.

ꞁꞁꞷ.....aer, er, ear, eer; *in* aerie, era, weary, peeress.

ꞁꞕ.....a, ai, ao, au, ay, aye, ea, ei, ey, eye; *in* age, aim, gaol, gauge, day, aye, steak, vein, obey, preyed. [Before R, changed to ꞁ; and in unaccented syllables, pronounced ꞁ; in terminations, generally ꞁ or ꞁ].

ꞁ.....a, ai, ay, e, ea, ei, eo, ie, u, ue; *in* many, said, says, very, bread, heifer, jeopardy, friend, bury, guess. [Before R, when not followed by a vowel, changed to ꞁ, as in her, term; and in unaccented syllables, generally changed to ꞁ].

ꞁ..... a, ai, e, ea, ee, ei, ey, i, ia, ie, o, u, ui, uy, y; *in* cabbage, certain (often ꞁ), England, antelope, guinea, breeches, forfeit, monkey, ill, infinite, spirit, miniature, sieve, women, busy, build, plaguy, hymn, happy. [Before R, when not followed by a vowel, changed to ꞁ, *as in* sir, firm].

ꞁ..... (for ꞁ unaccented), e, &c.; *in* sacred, forest, minstrel, peremptory, majesty, effeminate, elliptic, emphatic, endeavour, erroneous, except, goodness, element (ꞁꞷꞁꞷꞁꞷꞷ), &c.

ꞁꞅ.....are, aer, air, ayr, ayer, ere, ear, e'er, eir, eyre; *in* care, aer, pair, Ayr, prayer (petition), there, bear, ne'er, their, Eyre. [Variously pronounced ꞁꞅ, ꞁꞅ (Cockney), ꞁꞇꞷ (Scotch), ꞁꞇꞷ (Irish). In *gayer*, *greyer*, *layer*, *prayer* (one who prays), &c., the radical sound of ꞁ is heard, and the combination is dissyllabic (ꞁꞕꞁꞅ). In *Mayor* the pronunciation is generally monosyllabic (ꞁꞅ); distinguished from *mare* only by the 'rounded' quality of the termination. Thus: ꞁꞁꞅ, mare; ꞁꞁꞅ, mayor].

ꞁꞁꞷ.....ar, aer, air, ere, ear, eir, &c.; *in* canary, aeronaut, fairy, therein, bearing, heiress, &c. [Scotch, ꞁꞇꞷ; Irish, ꞁꞇꞷ].

ꞁ.....a, ai; *in* man, amber, carry, accept, admit, alternate, alphabet, accident, plaid. [In terminations and in prefixes—when followed by

Speech Symbols.

a single consonant sound—generally changed to ʅ, *as in* fatal, errand, appoint, attend, &c.]

ⱡ⊦.....eu, ew, ewe, o, oe, œu, oo, ooe, ou, u, ue, ui, wo ; *in* rheum, grew, brewed, do, shoe, manœuvre, bloom, wooed, through, rule, rue, fruit, two. [Before R, and in unaccented syllables, changed to ⱡ].

ⱡ.....o, ewe, &c. ; *in* doer, brewer, &c. [These words are dissyllables (ⱡⱡⱣⱣ, ⱡⱡⱡⱣⱣ, &c.)]

ⱡⱡ⊦.....eau, eo, eu, ew, ewe, iew, u, ue, yew, you, yu ; *in* beauty, feodal, feud, few, ewe, view, use, due, yew, youth, yule. [After R and SH, pronounced ⱡ⊦. After L and S, pronounced ⱡⱡ⊦. Before R, changed to ⱡⱡ].

ⱡⱡ⊦.....ew, u, ue, ui ; *in* lewd, lute, sue, suit. [Before R, changed to ⱡⱡ. S preceding ⱡ is apt to be changed into SH, as in the vulgar pronunciation of *suit* (ⱡⱡ⊦ⱡ). The tendency is legitimized by custom in the words *sugar*, and *sure*, and in the terminations *scious*, *sial*, *sion*. In sue, suit, and other words, ⱡⱡ is correctly heard.]

ⱡⱡ.....aut, eau, eo, ew, ewe, o, oa, oe, oo, ou, ow, owe ; *in* hautboy, beau, yeoman, shew, sewed, old, oak, foe, brooch, soul, crow, owed. [Before R, and in unaccented syllables, pronounced ⱡ.]

ⱡ.....o, ow, &c. ; *in* goer, mower, &c. [These words are dissyllables (ⱡⱡⱣⱣ, ⱡⱡⱣⱣ, &c.)]

ⱡ⊦.....a, au, aw, awe, &c. ; *in* all, laud, fraught, taught, saw, lawyer, awed, &c.

ⱡ.....a, au, &c. ; *in* salt, want, laudanum, &c.

ⱡⱣ.....ar ; *in* war, ward, swarm, dwarf.

ⱡⱣⱡ (or ⱡ⊦ⱡ) arr ; *in* warrior.

ⱡ.....(for ⱡ unaccented) o, oo, ou, u, ue ; *in* to, into, together, arrowroot, rendezvous, virulent, brutality, tissue : (for ⱡ accented) woman, book, cook, should, courier, bull, put, sugar, hurrah. [ⱡ is heard in the Scotch pronunciation of book, cook, &c.]

ⱡⱣ.....oor, our, ure, &c. ; *in* poor, moor, tour, sure.

ⱡⱣⱡ.....oor, ur, &c. ; *in* poorer, surer, assuring, tourist.

ⱡⱡⱣ.....ure, &c. ; *in* cure, pure, endure, ensure, immure, &c.

ⱡⱡⱣⱡ...ur, &c. ; *in* fury, purer, enduring, &c.

ⱡⱡⱣ..... ure, &c. ; *in* lure, allure, &c.

ⱡⱡⱣⱡ.....ur, &c. ; *in* lurid, alluring, &c.

Speech Symbols.

.....o; *in* voracious, original, oriental, forensic, &c.; (for unaccented) aoh, o, ow, &c.; *in* Pharaoh, obey, theology, philosophy, vocation, borrow, &c.

.....oar, o'er, oor, or, ore, orps, our, owar; *in* boar, o'er, door, floor, borne, torn, sore, corps, pour, tournament, towards.

..... or, &c.; *in* glory, horal, soaring, pouring, &c.

.....oa, ou, &c.; *in* broad, thought, sought, &c.

..... o, oa, ou, ow; *in* often, honest, foreign, horrible, orifice, groat, hough, knowledge. [In the termination *on*, (or) is generally heard; as in *abandon*, *lemon*, &c.]

..... aor, eor, or; *in* extraordinary, George, order, born, nor. [The termination *or* is pronounced , as in spectator, tailor, &c.]

.....eoi, oe, oi, oy; *in* burgeois, oboe, oil, coin, rejoice, boy, joy, royal.

.....(for unaccented) ure; *in* azure, fissure, measure, pleasure, seizure.

.....(for unaccented) u, &c.; *in* volume, solitude, superior, musician, &c.

.....(for unaccented) ure; *in* nature, feature, stature, &c.

.....(for before R, unaccented) o; *in* history, victory, &c.

.....(for unaccented) or; *in* razor, visor, orator, curator, &c.

THE TENDENCIES OF ENGLISH PRONUNCIATION.

The varied pronunciation of the letter R, and the influence of R on a preceding vowel in the same syllable; the tendency of long vowels to become diphthongs; and the comparatively indefinite sounds of *unaccented* vowels, are the most marked characteristics of English. These have long been noticed, but the precise nature of the peculiarities has not hitherto been determined.

Chiefly on account of these delicate and unascertained varieties of sound, the native pronunciation of English has been found excessively difficult for foreigners to master. It will no longer be so. The symbolism of Visible Speech enables us to define and exhibit the unaccentual, as well as all other national, dialectic, and even individual peculiarities, with the utmost exactitude. 'Knowledge is power!' The simplest work is performed with difficulty while we are ignorant of its precise nature, as well as of 'how to do it;' but nothing is difficult when we know the exact requirements for its accomplishment. Any language dialectically transcribed will be pronounced by every practised reader of Visible Speech just as it is spoken by those 'to the manner born.'

English Characteristics.

The sounds of R: R before a vowel is always a consonant (ω); and R before a consonant, or final, is always a glide (Y). R between two vowels is simply a consonant when the preceding vowel is not in the same syllable,* as in *sorry* (ᘏ⅂-ω⅃); and R represents both a glide and a consonant (Iω) when the preceding vowel is syllabled with the R, as in *soaring* (ᘏ⅂I-ω⅃Ɛ).

The influence of R on a preceding vowel: Vowels before R in the same syllable become 'widened' pharyngally and orally. Thus :—

aid, air,	⅃ᐱ⊕,	⅃Y	hand, hard,	OI⊕⊕,	OIY⊕
ode, ore,	⅂⅄⊕,	⅂Y	held, herd,	OIω⊕,	OIY⊕
pool, poor,	D⅂⅃ω,	D⅂Y	spilt, spirt,	ᘏD⅃ω⊕,	ᘏDIY⊕

A similar tendency is illustrated in the common pronunciation of such words as *yield* and *year* (ᘓ⅃⅃ω⊕, ᘓ⅃Y or ᘓIY), *come* and *curl* (ᗡ⅃ɘ, ᗡ⅃Yω, or ᗡIYω), &c.

The tendency of long vowels to become diphthongs: This is illustrated in the change of the consonant R into a 'glide' after a long vowel; and in the regular pronunciation of the vowels in *aid, ail, aim, ache,* &c. (⅃ᐱ), *ode, oak, globe,* &c. (⅂⅄). The same tendency leads to the 'Cockney' peculiarity of separating the labio-lingual vowels ⅂ ⅂ (oo, ō) into their lingual and labial components, and pronouncing the latter successively instead of simultaneously. Thus we hear ⅃⅄, ⅃⅄, I⅄, for ⅂; and ⅃⅂, ⅃⅂, ⅃⅂, for ⅂.

The indefinite sounds of unaccented vowels: The difference between unaccented and accented vowels in colloquial pronunciation is one not merely of stress, but, in general, of quality also. The following are the tendencies of unaccented vowels :—

I. From Long to Short.
II. From Primary to Wide.
III. From Low and Mid to Mid and High.
IV. From Back and Front to Mixed.
V. From 'Round' (Labio-Lingual) to Simple Lingual.
VI. From Diphthongs to single intermediate sounds.

The 2nd, 3rd, and 4th tendencies combined, affect all vowels in unaccented syllables, and give a general sameness to their sounds. The 'High-Mixed

* See 'Syllabic Analysis,' page 118.

Wide' vowel (I) is the one to which these tendencies point as the prevailing unaccentual sound.

The next in frequency are:—the 'high-back-wide' (1)—which takes the place of the 'mid-back' vowels (] and]); the 'high-front-wide' (ſ)—which takes the place of the 'front' (ſ and [ʎ); the 'mid-front-wide' ([)—which takes the place of [; and the 'mid-mixed-wide' (ʅ)—which takes the place of [. Greater precision is rarely heard even from careful speakers; but among the vulgar the sound I almost represents the vowel-gamut in unaccented syllables.

The 5th tendency is illustrated in the vulgar pronunciation of unaccented ō, (in bor*o*ugh, pr*o*nounce, geol*o*gy, philos*o*phy, &c.) as] instead of } ; and the] constantly tends forwards and upwards to ʅ ʅ 1 and I.

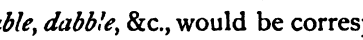
The 6th tendency is illustrated in the vulgar pronunciation of the pronouns *I* and *our* (ʅ and ʅY); in the change of *my* (ЄJʎ) into ЭI or Эſ, when unemphatic; in the regular pronunciation of the terminations *-our*, *-ous* (]Y,]Ω); in the change of the diphthong *day* (Ⓤ[ʎ) into Ⓤ[, Ⓤſ, ⓊI, in *Monday*, &c.

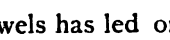
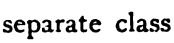
The possibility of alphabetically expressing such fluctuations of sound is a new fact in the history of writing. In ordinary 'Visible Speech' printing, a standard of pronunciation must, of course, be adopted. Custom is the law-giver; but the habits of the vulgar are not to be reflected in such a standard. The principle may be safely laid down that the less difference a speaker makes between accented and unaccented syllables—save in quantity—the better is his pronunciation. The Table at page 110, exhibits the extent to which distinctive sounds for unaccented vowels may be written in accordance with educated usage.

SYLLABIC ANALYSIS.

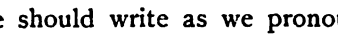
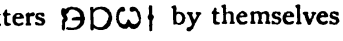
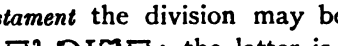
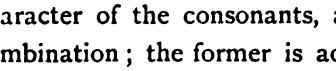
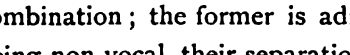
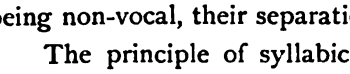
Good pronunciation is distinctly syllabic, but the boundaries of syllables, as *uttered*, do not correspond with the customary divisions made to the eye. The latter are regulated by etymology and by letters; the former are governed by the natural action of the organs of speech, which is always from close to open, or from consonants to vowels.

In the analysis of the word *table*, for instance, the division 'ta-ble' is organically correct; but in the analysis of the word *dabble*, the division 'dab-ble' is organically wrong. If the vowels in *dabble*, *meddle*, *middle*, *huddle*, &c., had been provided with distinctive letters, the idea of a different principle of division from that of 'ta-ble,' 'bri-dle,' &c., would never have been entertained. The error is due to the orthography, which requires consonants to be doubled in

order to indicate a peculiar power of the preceding vowel letter. In 'Visible Speech,' each element of sound having its own invariable symbol, the words *table, dabble*, &c., would be correspondingly syllabled  , &c.; the first syllable in each case ending with the vowel. This division is purely analytic of the sound of the word; it corresponds with the practical divisions which the voice always makes in *singing;* and it preserves the transitional character of the consonants and the syllabic function of the vowels.

The associations of letters in syllables—*b a, bā, a b, ăb*, &c.—are altogether conventional. Such arrangements are rendered necessary only by an imperfect alphabet. Yet this conjunction of a final consonant with the nominally 'short' vowels has led orthoepists to discriminate vowels terminated by consonants as a separate class of 'shut' sounds. There is no physiological ground for the distinction. All vowels are affected in their termination by the sound which follows them; but 'shut' vowels are not more so than other elements. The combinations  , and  (bā, ābe, and bă, ăb), are precisely analogous to the organs of speech.

The shut-vowel theory has the effect of making speakers clip their vowels unnecessarily short, and of depriving these elements of the volume which is essential to effective vocalization whether in speaking or in singing.

In the *phonetic* syllabication of words, any consonant between two vowels belongs to the following and not to the preceding vowel; and clusters of medial consonants are only divided to show the elements of compound words, or when all the consonants do not admit of monosyllabic union with the following vowel. Thus, in the division of the word *critical*, when using definite symbols for sounds, we should write as we pronounce,  , and not 'crit-ic-al.' On the same principle, the word *apple* is divisible into , and not 'ap-ple;' but in such a word as *ample*, the division is necessarily  , because the letters  by themselves would make two syllables. In such a word as *testament* the division may be, optionally, either  , or  ; the latter is preferable, because it preserves the transitional character of the consonants, and because '  ' is a perfectly monosyllabic combination; the former is admissible, because, both of the medial consonants being non-vocal, their separation makes no phonetic difference.

The principle of syllabication, as above explained, is dependent on the uniform action of the organs of utterance—from close to open—and is thus, of course, common to all languages.

We now present the Reader with an Outline Course of Lessons illustrating the mode in which Vernacular Reading may be taught to children and illiterate adults.

VISIBLE SPEECH APPLIED TO ENGLISH FOR TEACHING THE ILLITERATE TO READ.

Lesson I.

Show the learner the Alphabet, and tell him that the broad round-looking letters mean puffs and hisses in the mouth, and that the thin straight letters mean sound in the throat. Then teach him

The breathing, - - - -	O.
The puffs, - - - - -	ᗡ ᗢ ᗤ.
The throat sounds, - - - -	ſ ſ.
The sign of a long sound, - - -	⸸.

These letters will be perfectly learned in a few minutes, and they will furnish a number of words and sentences which should be read at once.

Unexplained letters may occasionally be introduced in cases where the reader would, from mere habit, pronounce the letters where they occur. Thus, in this lesson, ᘏ and ᘐ may be used in making up such sentences as:

Oſ ſ⸸ᗢᘏ ſᗢ.	ᗡſᗢſ Oſ⸸ᗢᘏ ſᗢ.
Oſ ᗡſ⸸ᗤᘏ ſᗢ.	Oſ ᗤſᗢſᘐ ᗡſᗢſ.

In arranging initiatory lessons in other languages, the same principle may be applied in connection with any elements which would naturally suggest themselves in a given context. This expedient may be safely adopted, to give variety to the first exercises; but, of course, each letter must receive sufficient explanation in its proper place, in a subsequent lesson.

Lesson II.

Call the learner's attention to the shape of the letters ᗡ ᗢ ᗤ, and to the parts of the mouth from which he has made the puffs. Explain that all letters pronounced at any given part of the mouth resemble each other in shape. Then ask him to point out from the Alphabet any other letters formed by the back

of the tongue—by the point of the tongue—and by the lips. This he will do without difficulty. Select

The lip hisses, - - - -	𑌵 𑌶.
The tongue hisses, - - -	𑌷 𑌸 𑌹.
The vowels, - - - -	𑌅 𑌆 𑌇𑌈.

A comparatively wide range of sentences may now be read; and there will be no need to limit the selection to monosyllabic words—which are, on the whole, more difficult than longer words. Nor need unknown vowels be excluded. The eye will learn a great deal from the relations of the symbols; and the teacher will, of course, at first, pronounce all words for the learner's imitation.

Lesson III.

Give the learner to understand that he can make a puff or a hiss and a sound in the throat at the same time. Let him hear the effect in the sounds 𑌭, 𑌰, 𑌲, 𑌳, 𑌴. Then show him that these letters, and also 𑌍 𑌐 𑌓, are the same which he has already learned, but that they now have the sign of throat sound united with them; and consequently are to be pronounced with a murmur of voice mixed with the puff or the hiss. Thus:

Puffs and hisses already known:	𑌕 𑌖 𑌗 𑌘 𑌙 𑌵 𑌶 𑌳.
Corresponding murmurs and buzzes:	𑌍 𑌐 𑌓 𑌛 𑌜 𑌭 𑌴 𑌳.

The new letters will be at once understood; and this lesson may embrace some additional elements.

Select 𑌓. The learner will discover by its shape that it is a *lip* letter, and also that it is made with sound in the *throat.* Tell him that the additional mark by which 𑌔 differs from 𑌓 means that the letter is sounded in the *nose.* He should then select the other 'nasals' from the alphabet for himself. Point out the relation, by shape, of 𑌍 to 𑌎 and of 𑌐 to 𑌑, and illustrate the *sounds* of 𑌍, 𑌐, 𑌓.

This lesson has introduced a large number of letters, but these involve only *two* new symbols, so that the learner can have felt no difficulty; and the symbol for 'round' vowels may be added.

Begin with 𑌉. Explain the meaning of the short cross line, and pronounce 𑌇 and 𑌉 several times, that the relation of these letters may be clearly comprehended. The series 𑌋 𑌊 𑌌 may then be presented. The relations of the three

sounds will be readily *felt*, and their differences will be perfectly remembered after a few repetitions.

The mark 𐑦 may be associated with 𐑗 (𐑗𐑦), with the explanation that the lips are to move a little closer at the end of the vowel.

Reading will now be comparatively easy, and the learner will know with certainty whether any unknown vowel is to be pronounced with the lips or otherwise.

LESSON IV.

Call the learner's attention to the mode in which he has pronounced the letters

𐑵 𐑢 𐑫,

and let him discover that he has made them by raising the point of the tongue to the palate. Then show him the letters

𐑮 𐑰 (*r*, *l*,)

and he will see by their shapes that they also require the point of the tongue to be raised. Tell him that

𐑮 has its murmur coming out over the point of the tongue, and that
𐑰 has its murmur coming out over both sides of the tongue.

Let him hear the sounds of the letters, by themselves, and in words, such as

𐑮𐑤𐑛, 𐑰𐑤𐑛, 𐑮𐑤𐑰, (rēad, lēad, reel).
𐑮𐑗𐑛, 𐑰𐑗𐑛, 𐑮𐑗𐑰, (road, load, roll).

There is only one other consonant to be learned, namely

𐑯.

Explain that the sound of 𐑯 is made with the tongue in about the same shape as the letter,—the middle raised and the point turned downwards,—and that the sound is very like that of the vowel 𐑤, but shorter and closer, and with a little buzzing added. Let him hear the sound by itself, and in words such as

𐑯𐑤, 𐑯𐑤𐑰𐑛, 𐑯𐑦, 𐑯𐑗𐑒, 𐑯𐑧𐑜 (ye, yield, you, yoke, young).

The particulars in this lesson will have presented no difficulty, and a new vowel series may be added.

Let the sounds ʃ ʃ ɭ be pronounced a number of times, and the relations between them, as well as between the symbols, cannot fail to be discerned. The learner knows the position of the tongue for ʃ: explain that the shape of the tongue is nearly the same for ʃ and ɭ; but that the high part of the tongue is a little further back, and the point of the tongue a little lower for ʃ than for ʃ, and for ɭ than for ʃ.

The mark ʎ may be associated with ʃ (as in ⊙ʃʎ, *day*,) and explained as meaning a very soft sound of ⊙.

Lesson V.

Call the learner's attention to the two vowels which he first learned, namely, ʃ and ʃ. He will observe the resemblance in the shapes of the letters, and he will be conscious of a resemblance between their sounds. He will also *feel* that the front of the tongue is in almost the same position for both vowels, and that the difference between the two sounds arises from some change at the back part of the mouth. His attention being directed to the matter, he will probably have a sensation of *widening* the back part of the mouth in sounding ʃ. He will be conscious of a similar sensation—whatever it may be—in pronouncing the pair of vowels ʒ and ʒ, which he learned in the second lesson; and he will now notice — if he has not done so sooner—the resemblance between these letters, and perceive that the difference between them is exactly the same as that between ʃ and ʃ.

After this preparatory exercise on sounds, which were already practically known, introduce the letters ʃ ɭ ɬ ɟ ɟ. These will be seen to differ from the letters ʃ ɭ ɬ ɟ ɟ exactly as ʃ differs from ʃ and ʒ from ʒ. Explain that their sounds differ in precisely the same way, and these new varieties will probably be pronounced with accuracy at the first effort.

There are only two other accented vowels to be learned; namely ɟ and ɟ. The letter ɟ is ɟ without the cross-line; and if the learner try to pronounce ɟ with the lips spread instead of rounded, he will produce ɟ. He will feel too that the sound is very like ʒ; and he will perceive the correspondence between the letters ʒ ɟ and the letters ʃ ɭ. Explain that their sounds correspond in the same way; that is:—the forepart of the tongue is very low for ɭ and the back part of the tongue is very low for ɟ.

The only remaining vowel is ɟ. The letter is formed by joining ɟɭ together, and the sound of ɟ will be produced by trying to sound ɟɭ at the same time.

The vowel ɪ is always followed by ɣ in English. Explain that ɣ is a very soft sound of ω.

The English reader has nothing more to learn. This short course of instruction will have, undoubtedly, excited his interest, and thus given him the best possible stimulus to perseverance in exercise.

Lesson VI.

Revise the Complete Alphabet, sounding and *naming* the letters.

Practise Reading on subjects easily comprehended.

Unaccented syllables may be printed either with the shades of sound actually heard in current pronunciation, or with the vowel which would be given to each syllable in separate syllabic utterance.

The latter mode should be adopted at first, for the sake of simplicity, and because the unaccentual variations are rather accidental than intended; and the learner intending the written sound will, very likely, fall short of it in the customary degree, when he has attained the power of reading with fluency. Besides, good reading is always syllabically distinct; and a reader may with propriety aim at a finer syllabication than that of conversational speech.

The only advantage attending the discrimination of unaccented varieties, is that a knowledge of them prepares the learner for a more ready recognition of foreign sounds. The writing of unaccentual shades will occasion no difficulty after the more important elements are known. [See next Section.]

Mode of Deducing Foreign Sounds from their Symbols when the Symbols of Vernacular Sounds are known.

When the letters which represent vernacular sounds are known, foreign sounds will be deduced from their symbols with facility and certainty. Thus the English learner knows the vowel ɨ. If he try to pronounce the sound with the lips spread instead of 'rounded' (with no superadded effort of guttural compression), the result will be ɭ. The finger and thumb may be used to spread the lips while sounding ɨ, in order to get the true result. The vowel ɾ is, of course, known; and by endeavouring to pronounce ɭɾ simultaneously, the sound of ɪ will be produced.

In like manner, the attempt to form the known sounds ɭɾ simultaneously, will give the quality of ɭ. So, too, ɪ will result from the effort to blend the sounds of ɭɾ; ɾ is a common English vowel, and ɭ will be obtained by spreading the lips while sounding ɨ.

The vowel ⱡ will be formed by trying to sound ⱡ with the lips as close as for ⱡ; ⱡ will be formed by trying to sound ⱡ with the lips contracted as for ⱡ; and ⱡ, by trying to sound ⱡ with the lips 'rounded' as for ⱡ. So, likewise, the vowel ⱡ will be formed by the effort to blend the sounds of ⱡⱡ; ⱡ by blending ⱡⱡ; and ⱡ by blending ⱡⱡ.

Unknown varieties of 'wide' vowels will be produced by a similar coalescence of known sounds. Thus: ⱡ ⱡ ⱡ ⱡ ⱡ ⱡ ⱡ ⱡ are English elements; the quality of the vowel ⱡ will be obtained by removal of lip-modification from ⱡ; ⱡ by blending ⱡⱡ; and ⱡ by blending ⱡⱡ. The unknown ⱡ will be obtained by pronouncing ⱡ with the lips contracted as for ⱡ; ⱡ by blending ⱡⱡ; ⱡ by trying to sound ⱡ with the lips 'rounded' as for ⱡ; ⱡ by blending ⱡⱡ; ⱡ by trying to sound ⱡ with the lips 'rounded' as for ⱡ; and ⱡ by blending ⱡⱡ.

These various relations, it will be observed, are all expressed in the symbols themselves. [See 'Table showing the Mutual Relations of Symbols and Sounds,' page 41.]

NOTE ON THE ZULU CLICKS.

The formation of these peculiar linguistic elements has been explained at page 62; but it seems necessary to add a note with reference to their symbolization. The Rev. Dr Callaway states, in the Preface to his 'Izinganekwane,' (p. iv) that in Zulu the clicks 'are never heard without an accompanying consonantal sound'—of *g*, *k*, or *n*. In all such cases, the writing of the sign ⊲ after the consonant expresses the click without another consonant letter. The click is the mere removal of the organic contact which is involved in all 'shut' and 'nasal' consonants; and the sign ⊲ indicates that the disjunction is made with 'suction stopped,' instead of with the *expulsive* recoil or transition which commonly finishes the consonant.

A click only requires the consonant action, of which it is the conclusion, to be written, when the click is used alone, before or after a vowel; or when it follows another than its cognate consonant,—as ⱡⱡ⊲.

The nature of the clicks will be best understood by prolonging a voiced nasal consonant—ⱡ ⱡ or ⱡ—and, *without stopping the sound*, removing an anterior organic contact with an audible effort of suction. The suctions ⱡ⊲, ⱡ⊲, or ⱡ⊲, may thus be made if ⱡ be 'held;' ⱡ⊲ or ⱡ⊲ may be made while ⱡ is 'held;' and ⱡ⊲ can alone be made while ⱡ is 'held'—without interrupting the sound of the nasal consonant. The clicks ⱡ⊲ and ⱡ⊲ cannot be formed with *continued* vocality; ⱡ⊲ can only follow ⱡ ⱡ or ⱡ, or occur before or after a vowel; and ⱡ⊲ can only precede or follow a vowel.

While this sheet is passing through the press, an opportunity has occurred for an independent study of the Zulu Clicks, from the utterance of a native of Natal. The Author's Son (A. G. B.) writes, as the result of his observation of these elements :—

"The 'Dental Click' (represented by *c* in Dr Callaway's Work) is ᗡ◄. This, and the 'Palatal Click,' I got at once to the satisfaction of my visitors. The latter (*q*) is ᗡc◄ (no flap). The words given were [ᗺᗡ◄'ᗧ]ᗡ[and [ᗺ†ᗡc◄]'ᗯ[|ᗰI. In the former word the voice was continuous from ᗺ to ᗧ; in the latter word, the click made a break in the sound.

It was some time before I was equally successful with the third or 'Lateral Click' (*x*), which I pronounced ᗡ'◄. In the course of some forty or fifty repetitions—in the word ᗺ]ᗺ'ᗡ'◄]ᗰᗢ[—I gave a slight *prolongation* to the 'suction,' and then it was admitted that I had the sound perfectly. This click is decidedly *uni*-lateral.

These are all of the Clicks. But the Zulu sailor gave me another sound, which I should term an *expulsive* Click. It is Dr Callaway's 'Lateri-Guttural Fricative' (*hh*). The sound is ᗡ⅄►, as I pronounced it in the word [ᗡ⅄►ᗧ],—which the sailor said was perfect. As I heard the sound, there was no lateral emission. A compressed ᗡ is formed while X is 'held,' and the explosive sound, heard before the ᗧ, has quite the effect of a Click.

The sound of *hl* is ᘓ; Ng initial is, as I caught it, ᗺᗺ. But the sailor could not distinguish any difference between ᗺᗺ[and ᗰᗺ[('Ngi')."

The explanation given in the preceding page shows why a click after a nasal consonant does not interrupt the continuity of the voice; while between two vowels it necessarily makes a break in the sound.

The sound of hh, written ᗡ⅄► in the above experiment, is perhaps X}—a closure of the super-glottal passage, as in the act of swallowing.

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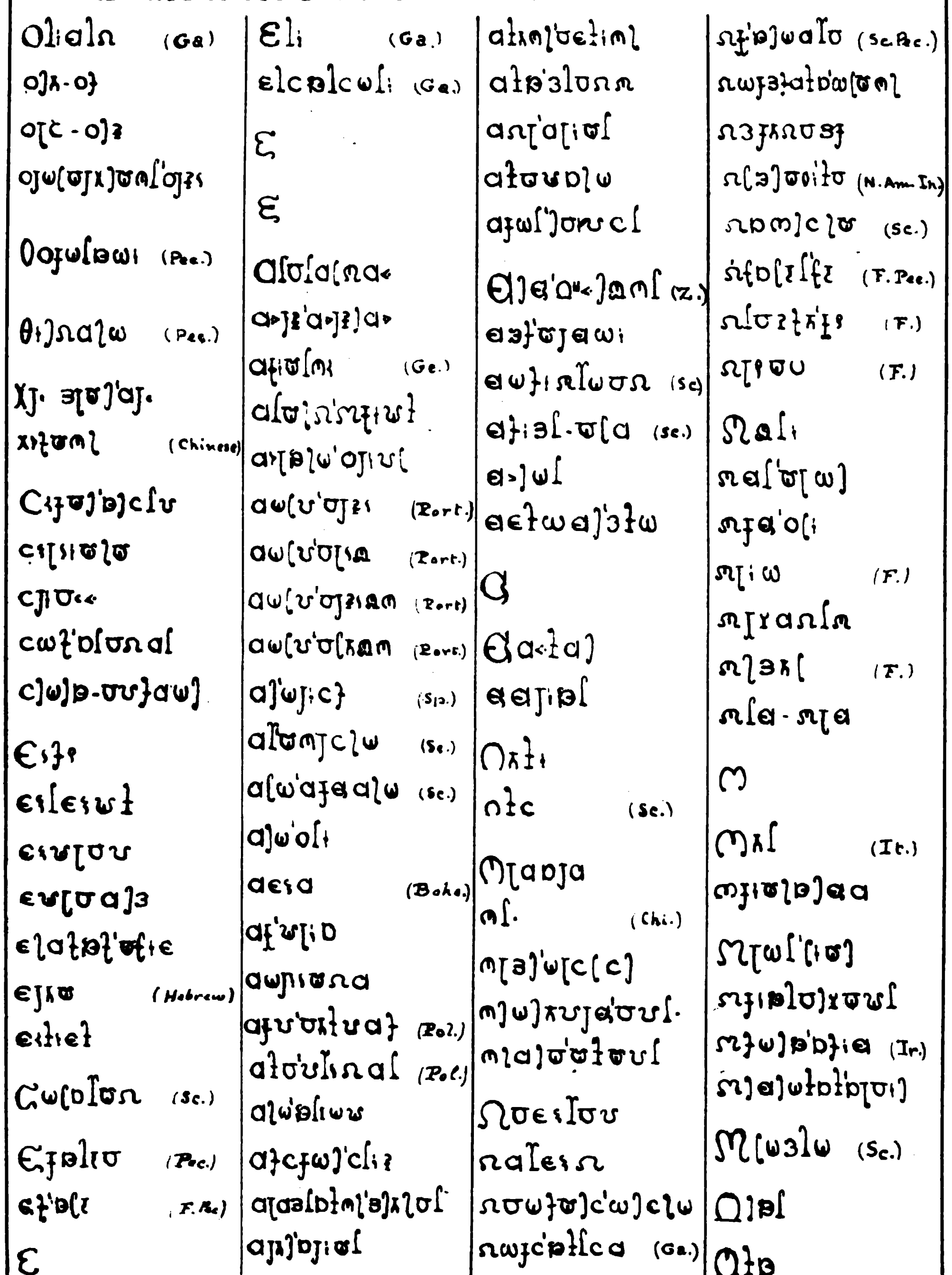

VOCABULARY (continued.)

meet			
eye			
ear			
eyebrow	(Ge.)		
eyelash	(Ge.)		
nose	(Ge.)		
nostrils	(Ge.)		
mouth	(Ge.)		
tooth	(Ge.)		
tongue	(Ge.)		
chin	(Ge.)		
beard	(Ge.)		
head	(Ge.)		
hair	(Ge.)		
neck	(Ge.)		
throat	(Ge.)		
shoulder	(Ge.)		
breast	(Ge.)		
belly	(Ge.)		
navel	(Ge.)		
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heart	(Ge.)		
liver	(Ge.)		
sinew	(Ge.)		
fat	(Ge.)		
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cow	(Ge.)		
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sheep	(Ge.)		
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wolf	(Ge.)		
bear	(Ge.)		
lion	(Ge.)		
tiger	(Ge.)		
elephant	(Ge.)		
camel	(Ge.)		
monkey	(Ge.)		
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tree	(Ge.)		
leaf	(Ge.)		
flower	(Ge.)		
fruit	(Ge.)		
root	(Ge.)		
corn	(Ge.)		
grass	(Ge.)		
stone	(Ge.)		
earth	(Ge.)		
water	(Ge.)		
river	(Ge.)		
sea	(Ge.)		
lake	(Ge.)		
island	(Ge.)		
mountain	(Ge.)		
valley	(Ge.)		
wood	(Ge.)		
fire	(Ge.)		
smoke	(Ge.)		
ashes	(Ge.)		
coal	(Ge.)		
flame	(Ge.)		
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door	(Ge.)		
window	(Ge.)		
roof	(Ge.)		
wall	(Ge.)		
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table	(Ge.)		
chair	(Ge.)		
bench	(Ge.)		
stool	(Ge.)		
cupboard	(Ge.)		
shelf	(Ge.)		
box	(Ge.)		
basket	(Ge.)		
pot	(Ge.)		
kettle	(Ge.)		
pan	(Ge.)		
dish	(Ge.)		
plate	(Ge.)		
spoon	(Ge.)		
knife	(Ge.)		
fork	(Ge.)		
cup	(Ge.)		
glass	(Ge.)		
bottle	(Ge.)		
jug	(Ge.)		
pitcher	(Ge.)		
barrel	(Ge.)		
tub	(Ge.)		
bucket	(Ge.)		
ladle	(Ge.)		
tap	(Ge.)		
cloth	(Ge.)		
clothes	(Ge.)		
coat	(Ge.)		
waistcoat	(Ge.)		
breeches	(Ge.)		
shirt	(Ge.)		
shift	(Ge.)		
petticoat	(Ge.)		
gown	(Ge.)		
cloak	(Ge.)		
hat	(Ge.)		
cap	(Ge.)		
shoe	(Ge.)		
boot	(Ge.)		
stocking	(Ge.)		
garter	(Ge.)		
glove	(Ge.)		
purse	(Ge.)		
money	(Ge.)		
penny	(Ge.)		
shilling	(Ge.)		
pound	(Ge.)		
ring	(Ge.)		
bracelet	(Ge.)		
necklace	(Ge.)		
earring	(Ge.)		
pin	(Ge.)		
needle	(Ge.)		
thread	(Ge.)		
yarn	(Ge.)		
wool	(Ge.)		
cotton	(Ge.)		
linen	(Ge.)		
silk	(Ge.)		
lace	(Ge.)		
ribbon	(Ge.)		
fringe	(Ge.)		
button	(Ge.)		
buttonhole	(Ge.)		
pocket	(Ge.)		
handkerchief	(Ge.)		
comb	(Ge.)		
brush	(Ge.)		
soap	(Ge.)		
towel	(Ge.)		
razor	(Ge.)		
scissors	(Ge.)		
looking-glass	(Ge.)		
watch	(Ge.)		
clock	(Ge.)		
key	(Ge.)		
lock	(Ge.)		
bolt	(Ge.)		
hinge	(Ge.)		
nail	(Ge.)		
screw	(Ge.)		
hammer	(Ge.)		
saw	(Ge.)		
plane	(Ge.)		
axe	(Ge.)		
adze	(Ge.)		
chisel	(Ge.)		
file	(Ge.)		
rasp	(Ge.)		
gimlet	(Ge.)		
vice	(Ge.)		
anvil	(Ge.)		
bellows	(Ge.)		
trade	(Ge.)		
work	(Ge.)		
tool	(Ge.)		
master	(Ge.)		
servant	(Ge.)		
boy	(Ge.)		
girl	(Ge.)		
man	(Ge.)		
woman	(Ge.)		
husband	(Ge.)		
wife	(Ge.)		
father	(Ge.)		
mother	(Ge.)		
son	(Ge.)		
daughter	(Ge.)		
brother	(Ge.)		
sister	(Ge.)		
uncle	(Ge.)		
aunt	(Ge.)		
cousin	(Ge.)		
nephew	(Ge.)		
niece	(Ge.)		
grandfather	(Ge.)		
grandmother	(Ge.)		
grandson	(Ge.)		
granddaughter	(Ge.)		
child	(Ge.)		
baby	(Ge.)		
twin	(Ge.)		
family	(Ge.)		
people	(Ge.)		
nation	(Ge.)		
king	(Ge.)		
queen	(Ge.)		
prince	(Ge.)		
princess	(Ge.)		
lord	(Ge.)		
lady	(Ge.)		
gentleman	(Ge.)		
soldier	(Ge.)		
officer	(Ge.)		
captain	(Ge.)		
general	(Ge.)		
army	(Ge.)		
navy	(Ge.)		
ship	(Ge.)		
boat	(Ge.)		
sail	(Ge.)		
mast	(Ge.)		
rudder	(Ge.)		
oar	(Ge.)		
anchor	(Ge.)		
cable	(Ge.)		
rope	(Ge.)		
cord	(Ge.)		
net	(Ge.)		
hook	(Ge.)		
line	(Ge.)		
bait	(Ge.)		
float	(Ge.)		
sinker	(Ge.)		
fishing-rod	(Ge.)		
fishing-tackle	(Ge.)		
fishing-line	(Ge.)		
fishing-hook	(Ge.)		
fishing-net	(Ge.)		
fishing-boat	(Ge.)		
fishing-rod	(Ge.)		
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fishing-line	(Ge.)		
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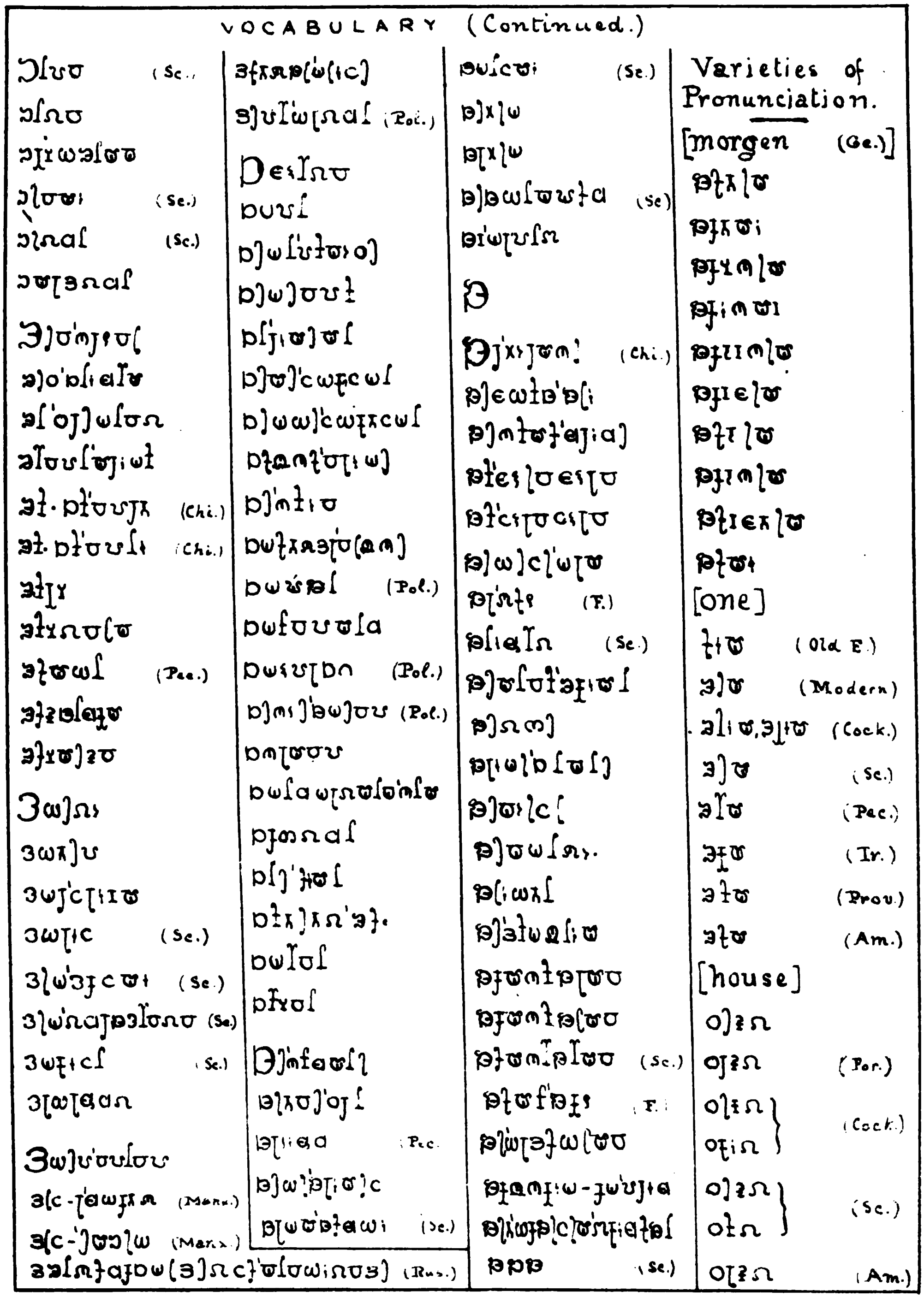
fishing-net	(Ge.)		
fishing-boat	(Ge.)		


VOCABULARY (Continued.)
Varieties of Pronunciation.
[morgen (Ge.)]
[one]
(Old E.)
(Modern)
(Cock.)
[house]

INTERJECTIONAL AND INARTICULATE SOUNDS, &c.

ɸ ɸ̝ ɸʰ ɸ:	ɑɛʂɪɑ·	(15) ʍ ɬ ɬ̝ ɬ̝ʷ
ɑɛʂɪɑ·	ɑɛʂɪɑ·	(16) ʍʷ ɬ̝ʷ ɬ̝ ɬ̝
ɔʃɒ· ɔʃɒ·	ɪɪ ɑɛɪ ɑɛɪɑ·	(17) ɬ̝ˌ ɬ̝ˌ ɬ̝ˌ ɬ̝ˌ ɬ̝ˌ
ɑᵘ·ᵊ ɑᵘ·ᵊ	ɒɔɒ· ʊɔ· ʊɔ·	(VC) ɑʃ· ɑʃ· ɑʃ·ɲʃ· ɑʃ·
ɑɒɑ·	ɔɪɲ· ɯɪɔ	(VC) xʃ· ɪx· xʃ· ˌxɪʃx·
ɒɔɪɬɪ ɯʃɑʃ	ɔʃx· ɔʃx·	(VC) ˈɒɯʃɑ· ɒɯʃɑ· ɒɯʃɑ·
ɒ>ɪɔɪ	ɑɬɪ ˈʃɪɪ·	ɯɪɪʃ ɑʃɪɑʃɪɜɱ, ɯɪɪɪɱ
ɒɒɪ ɔɔ ɔɔ	xɬ·< xɬ·< xɬ·<	ɒɯʃɑɪ ɛʃɔʃ ɒɯʃɑ·ɪ ɒɯʃɑ·ɪ
ɜɔʌ·ɪ ʌɪɪ	ˈʃɪɪ< ʃɪɪ; ˈʃɪɪ< ʃɪ	ɒɯʃɑɪ, ɛɪɪɪɪ
θɪɪ	ɬ· ɬ· ɑˈɬɪɬ	ɔ· ɔ· ɔɪ^
θɪɪɪ	ɔɪʌɪɪɑ ɯ ɔɪ ɔ ɔɪ ɔ	ɔɪ

DIALECTS.

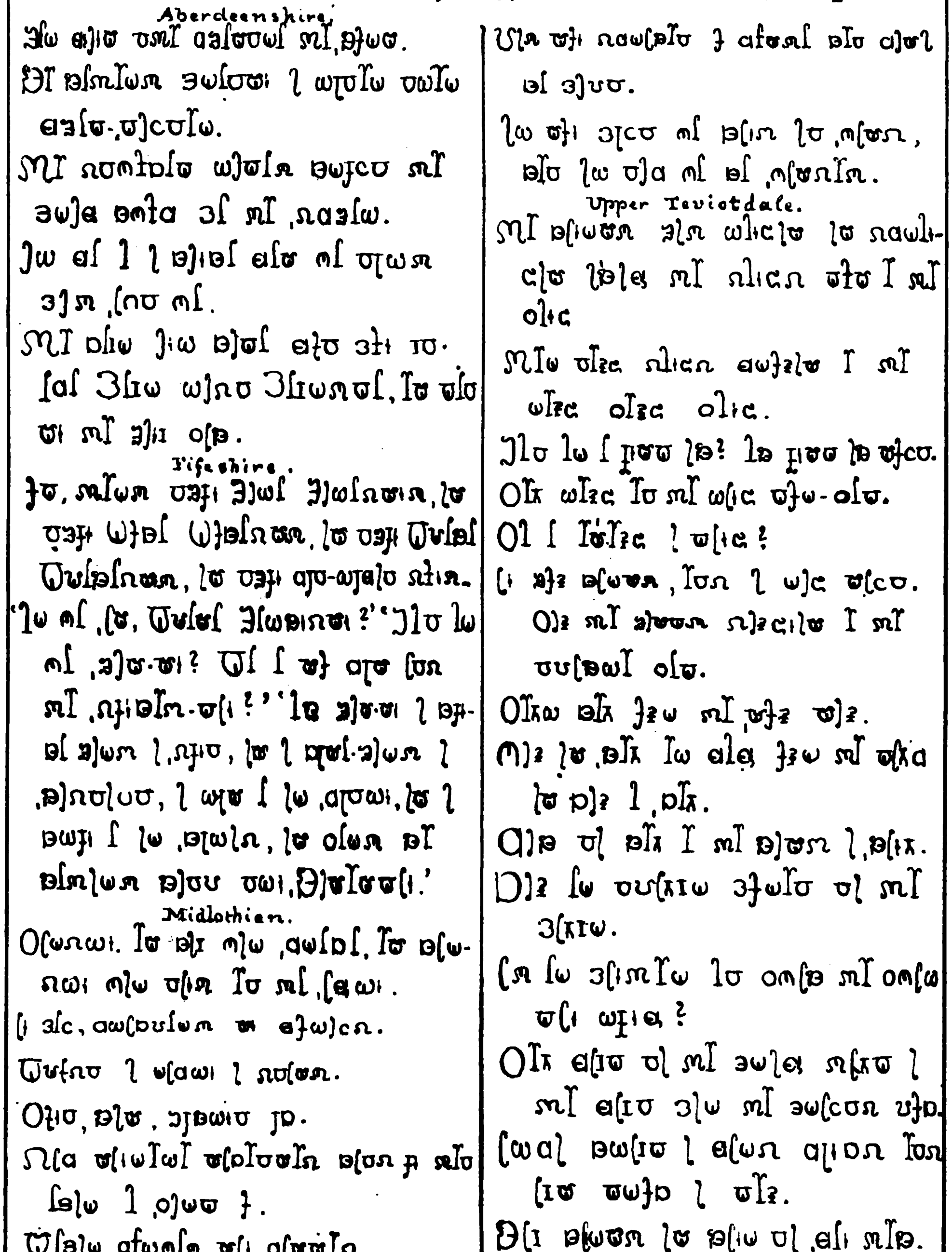
Pronunciation of the Numerals 1 to 12.*

	Cockney	Border (1) (Teviotdale)	Peebles (2)	Midlothian (3)	Fife (4) (Dunfermline)	Aberdeen (5) (Strathboggie)
1	ɜɪʃɛ	ɯʃɤ	ɯʃɒ	ɯʃɒ, ʃɒ	ʃɹɒ	ɱʃɒ
2	ʈʊ, ʈɥɑ	ɒɜʃɪ	ɒɜʃɪ	ɪɟɛɑ	ɒɜɟɪ	ɒɜʃɪ
3	ɯɯɤ	ɯɯɣ	ɯɯʃɪ	ɕɯʃɪ	ɯɯʃɪ	ɱɯʃɪ
4	ɜʃɪɤ	ɜʃɪɒ	ɜʃɪɒ	ɜʃɪɒ	ɒɹʃɒ	ɜʃɪɔɯ
5	ɜʃɤɜ	ɜʃɤɜ	ɜʃɪɜ	ɜʃɪɜ	ɜʃɪɜ	ɜʃɪɜ
6	ɹʊɔɹ	ɹʊɔɹ	ɹʊɔɹ	ɹʊɔɹ, ɹʊɔɹ	ɹʊɔɹ	ɹʊɔɹ
7	ɹʊɛɪɱ	ɹʊɛɪɱ	ɹʊɛɪɱ	ɹʊɛɪɱ	ɹʊɛɪɱ	ɹʊɛɤɪɱ
8	ʃɪɤɒ	ʃɪʊɒ	ʃɪɔɒ	ʃɪɔɒ	ʃɔɒ	ʃɔɒ
9	ɑʃɤɑ	ɑʃɤɑ	ɑʃɤɑ	ɑʃɤɑ	ɑʃɤɑ	ɑʃɤɑ
10	ɑɹɑ	ɑɹɑ	ɑɹɑ	ɑɹɑ	ɑɹɑ	ɑɹɑ
11	ʃɯʃɛɹɑɪ	ʈɯʃɛɹɑɪ	ʈɯʃɪɹɑɪ	ɑɪɯʃɪɹɑɪ	ʃɯʃɛɹɑɪ	ʈɯʃɤɛɹɑɪ
12	ɛɱɹɛɑ	ɱʃɛɑ	ɱʃɪɑ	ɱɹɛɑ	ɱɹɛɑ	ɱʃɛɑ
20	ɟɑɑɹɛɑ	ɟɑɑɹɑ	ɟɑɑɹɛɑ	ɟɑɑɹɛɑ	ɟɑɑɱɛɑ	ɟɑɑɱɛɑ

* Written from the Dictation of (1) Mr. J.A.H.Murray; (2) Mr. Geo. Elphinstone; (3) Mr. Archd. Bell; (4) Revd. D.S Drysdale; (5) Mr. J. Forrest.

TEST-SENTENCES._ DIALECTS.

[The accent is always on the first syllable unless otherwise expressed.]



DIALECTS (Continued.)

Scottish Border (Continued.)

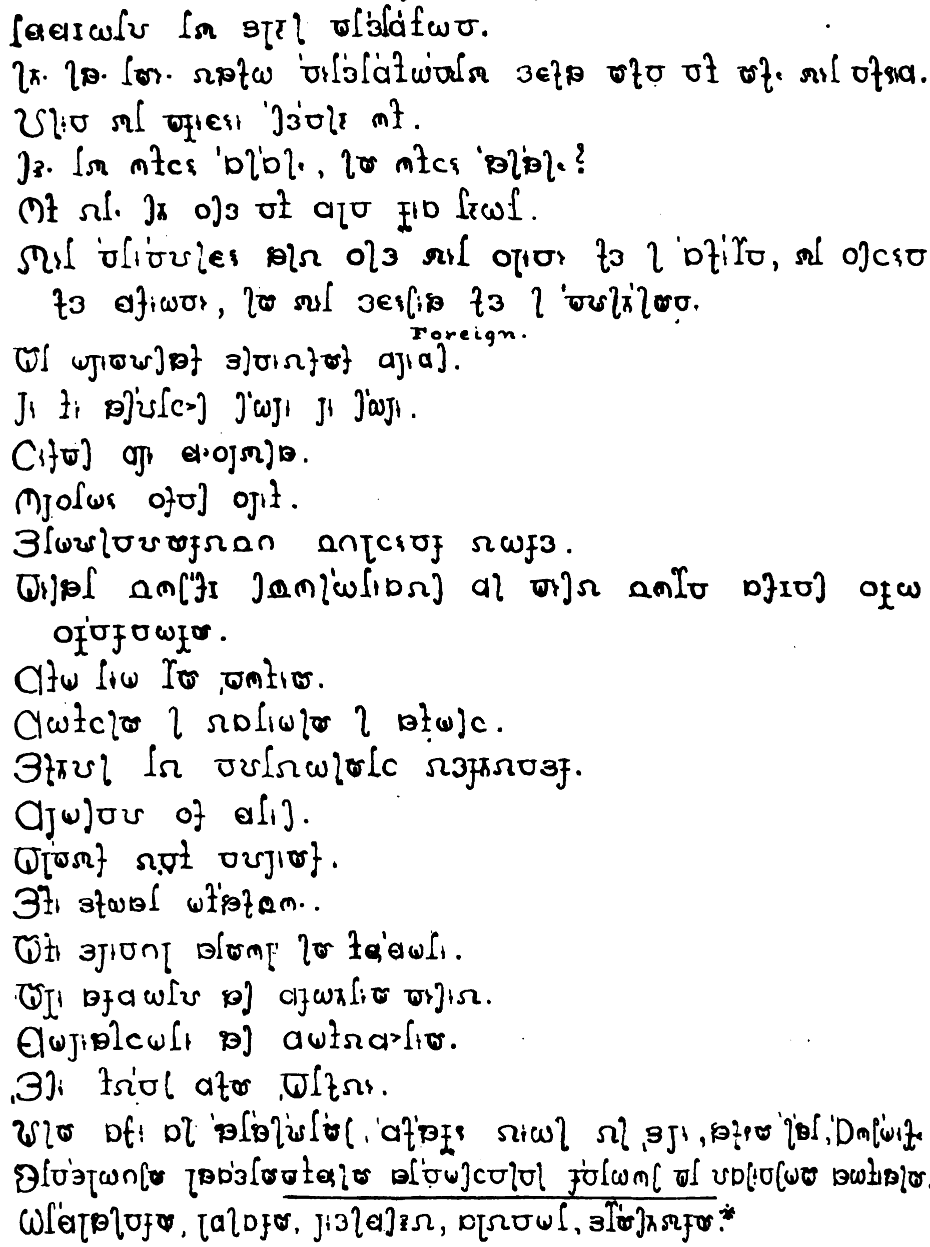
[Dictated by Mr J.A.H. Murray.]

Miscellaneous Scottish.

Miscellaneous English, &c.

TEST-SENTENCES (Continued)

Foreign English.



*A Grecized form of: 'Leg of mutton, a capon, half a goose, pastry, venison.'

SHAKSPERIAN ENGLISH.

Portia's Speech on Mercy

AS PRONOUNCED IN THE TIME OF SHAKSPERE.

Written from the Dictation of

ALEXANDER JOHN ELLIS, Esq., F.R.S.

The quality of mercy is not strained;
It droppeth as the gentle rain from heaven
Upon the place beneath: it is twice blessed;
It blesseth him that gives and him that takes:
'Tis mightiest in the mightiest: it becomes
The throned monarch better than his crown;
His sceptre shows the force of temporal power,
The attribute to awe and majesty,
Wherein doth sit the dread and fear of kings;
But mercy is above this sceptred sway,
It is enthroned in the hearts of kings,
It is an attribute to God himself;
And earthly power doth then show likest God's,
When mercy seasons justice. Therefore, Jew,
Though justice be thy plea, consider this,
That in the course of justice none of us
Should see salvation: we do pray for mercy;
And that same prayer doth teach us all to render
The deeds of mercy.

WILLIAM SHAKSPEARE.

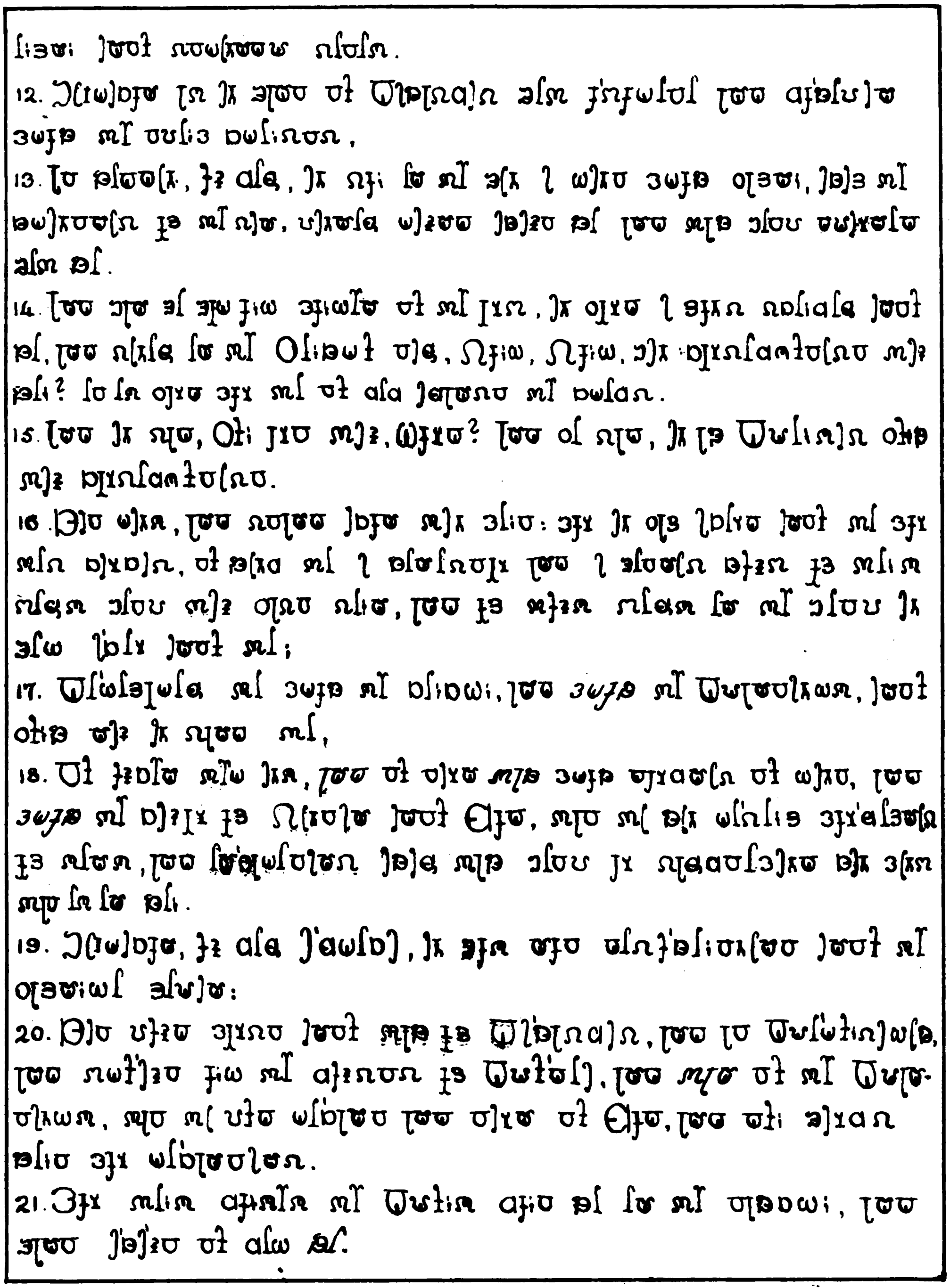
[Merchant of Venice Act IV., Sc. I.]

SHAKSPERIAN AND MODERN PRONUNCIATION.

quality	kwɔlitə	strained	strend	is	iz
droppeth	drɔpəθ	gentle	jɛntl	rain	rein
heaven	hɛvən	upon	upɔn	place	plas
beneath	biniθ	twice	twis	blessed	blɛsɛd
blesseth	blɛsəθ	gives	givz	takes	teiks
'tis	tis	mightiest	meitiɛst	becomes	bikɔmz
throned	θrond	monarch	mɔnək	better	bɛtə
than	ðan	crown	krɔun	sceptre	sɛptə
shows	ʃɔuz	force	fɔs	temporal	tɛmpɔrəl
power	pɔuə	attribute	ətribiut	awe	ɔ
majesty	mɛjəsti	wherein	hwɛrin	doth	dɔθ
sit	sit	dread	drɛd	fear	fiə
kings	kingz	but	bət	above	əbʌv
this	ðis	sceptred	sɛptəd	sway	swei
it	it	is	iz	enthroned	inθrond
in	in	the	ðə	hearts	hats
of	ɔv	kings	kingz	it	it
is	iz	an	an	attribute	ətribiut
to	tu	God	gɔd	himself	himsɛlf
and	ənd	earthly	ɛrθli	power	pɔuə
doth	dɔθ	then	ðɛn	show	ʃɔu
likest	laikɛst	God's	gɔdz	when	hwɛn
mercy	mɛsi	seasons	sizənz	justice	jʌstis
therefore	ðɛrfɔ	Jew	jiu	though	ðɔu
be	bi	thy	ðai	plea	plɛ
consider	kənsidə	this	ðis	that	ðat
in	in	the	ðə	course	kɔs
of	ɔv	justice	jʌstis	none	nʌn
of	ɔv	us	ʌs	should	ʃud
see	si	salvation	sælvɛiʃən	we	wi
do	du	pray	prei	for	fɔ
mercy	mɛsi	and	ənd	that	ðat
same	sɛim	prayer	prɛə	doth	dɔθ
teach	tiʧ	us	ʌs	all	ɔl
to	tu	render	rɛndə	the	ðə
deeds	dids	of	ɔv	mercy	mɛsi

LXXVI. Psalm. CXXXVII.

1. Super flumina Babylonis illic sedimus et flevimus, cum recordaremur tui Sion.
2. In salicibus in medio ejus suspendimus organa nostra.
3. Quia illic interrogaverunt nos qui captivos duxerunt nos verba cantionum. Et qui abduxerunt nos postulaverunt a nobis hymnum. Et deducentes nos dixerunt: Cantate nobis de canticis Sion.
4. Quomodo cantabimus canticum Domini in terra peregrinationis?
5. Si oblitus fuero tui Jerusalem, oblivioni detur dextera mea.
6. Adhæreat lingua mea faucibus meis, si non meminero tui. Si non proposuero Jerusalem in principio lætitiæ meæ.
7. Memor esto Domine filiorum Edom in die Jerusalem. Qui dicunt exinanite exinanite usque ad fundamentum in ea.
8. Filia Babylonis infelix. Beatus qui retribuet tibi retributionem tuam quam retribuisti nobis.
9. Beatus qui tenebit et allidet parvulos tuos ad petram.

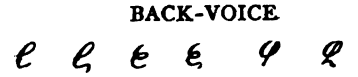


ἀπὸ τῆς γῆς τοῦ μὴ ἐξολεθρεῦσαι αὐτοὺς καθότι ἐλάλησεν κύριος τῷ Μωυσῆ.
22 Καὶ τῷ Ἀαρὼν καὶ τοῖς υἱοῖς αὐτοῦ λέγων· Οὗτος ὁ νόμος τῶν ὁλοκαυτωμάτων, τῆς θυσίας καὶ τῆς περὶ ἁμαρτίας καὶ τῆς περὶ πλημμελείας καὶ τῶν τελειώσεων καὶ τῆς θυσίας τῆς σωτηρίου,
23 ἃ ἐνετείλατο κύριος τῷ Μωυσῆ ἐν τῷ ὄρει Σινά, ἐν ᾗ ἡμέρᾳ ἐνετείλατο τοῖς υἱοῖς Ἰσραὴλ προσφέρειν τὰ δῶρα αὐτῶν τῷ κυρίῳ ἐν τῇ ἐρήμῳ Σινά.
24 Καὶ ἐλάλησεν κύριος πρὸς Μωυσῆν λέγων·
25 Λάλησον πρὸς Ἀαρὼν καὶ τοὺς υἱοὺς αὐτοῦ λέγων· Οὗτος ὁ νόμος τῶν ὁλοκαυτωμάτων· αὐτὸ τὸ ὁλοκαύτωμα ἐπὶ τῆς ἑστίας ὅλην τὴν νύκτα ἕως πρωΐ, καὶ τὸ πῦρ τοῦ θυσιαστηρίου καυθήσεται ἐπ' αὐτοῦ.
26 Καὶ ἀρεῖ ὁ ἱερεὺς ἀπὸ τῶν ἱματίων αὐτοῦ τὴν στολὴν καὶ τὰ ἐνδύματα τὰ λινᾶ καὶ ἀρεῖ τὴν τέφραν ἀπὸ τοῦ πυρὸς τοῦ κατακαίοντος τὸ ὁλοκαύτωμα ἐπὶ τοῦ θυσιαστηρίου καὶ ἐπιθήσει αὐτὴν παρὰ τὸ θυσιαστήριον.
27 Καὶ ἐκδύσει τὰ ἱμάτια αὐτοῦ καὶ ἐνδύσει ἱμάτια ἕτερα καὶ ἐκφερεῖ τὴν τέφραν ἔξω τῆς παρεμβολῆς εἰς τόπον καθαρόν.
28 Καὶ τὸ πῦρ τοῦ θυσιαστηρίου ἐπ' αὐτοῦ κατακαήσεται· οὐ σβεσθήσεται, ἀλλὰ καίων καύσει ὁ ἱερεὺς ἐπ' αὐτὸ ξύλα τὸ πρωΐ καὶ ἐπιθήσει ἐπ' αὐτὸ τὸ ὁλοκαύτωμα καὶ ἐπικαύσει ἐπ' αὐτὸ στέαρ τῶν εἰρηνικῶν·
29 πῦρ διηνεκὲς καυθήσεται ἐπὶ τοῦ θυσιαστηρίου, οὐ σβεσθήσεται.
30 Καὶ οὗτος ὁ νόμος τῆς θυσίας τῆς περὶ ἁμαρτίας· ἐν τόπῳ οὗ ἐὰν σφάζωσιν τὸ ὁλοκαύτωμα σφάξουσιν τὴν περὶ ἁμαρτίας ἐνώπιον κυρίου· ἅγια ἁγίων ἐστίν.
31 Ὁ ἱερεὺς ὁ προσφέρων αὐτὴν περὶ ἁμαρτίας ἐν τῷ αἵματι αὐτῆς εἰσοίσει εἰς τὴν σκηνὴν τοῦ μαρτυρίου ἐξιλάσασθαι ἐν τοῖς ἁγίοις, καὶ αὐτὴ ἐν πυρὶ κατακαήσεται.
32 Καὶ οὗτος ὁ νόμος τῆς θυσίας τῆς περὶ πλημμελείας· ἅγια ἁγίων ἐστίν.
33 Ὡς ἂν περὶ ἁμαρτίας θύσωσιν, ὡς ἂν περὶ πλημμελείας θύσωσιν, τὸ αἷμα αὐτῶν προσοίσουσιν εἰς τὴν σκηνὴν τοῦ μαρτυρίου ἐξιλάσασθαι ἐν τοῖς ἁγίοις, καὶ αὐτὴ ἐν πυρὶ κατακαήσεται.

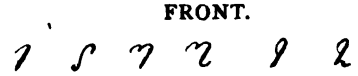
CONSONANTS.

BACK.

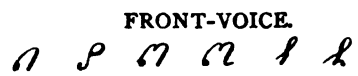
BACK-VOICE.



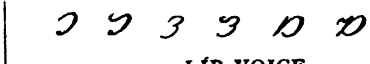
FRONT.



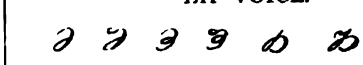
FRONT-VOICE.



LIP.

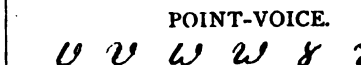


LIP-VOICE.

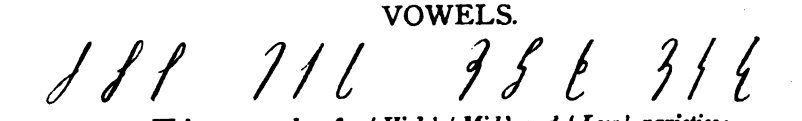


POINT.

POINT-VOICE.



VOWELS.



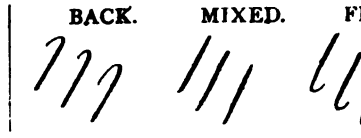
Written, as under, for 'High,' 'Mid,' and 'Low' varieties:—

Primary.

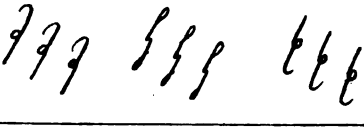
BACK. MIXED. FRONT.

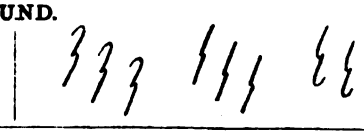
Wide.

BACK. MIXED. FRONT.

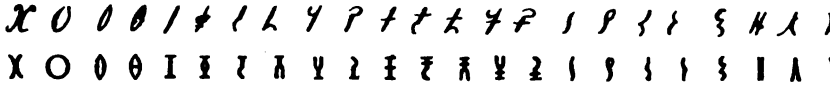


ROUND.





ASPIRATE, GLIDES, MODIFIERS, &c.



The following require no change in Script:

PRINCIPLES.

Voice-Consonants and Primary Vowels have a *loop* formed in the hair-stroke of the letters.
Round Vowels have a break, or bend, in the body line of the letters.
Round Glides have a *cross-stroke*, as in the 'print'-letters.
Nasal Consonants have the nasal-sign written horizontally.
'High' Vowels ascend, 'Low' Vowels descend, and 'Mid' Vowels ascend and descend beyond the line of the Consonants.

Matt. chap. XIV.

When the even was come he sate there alone.
2. And many people followed him: and he healed them.
3. For Herod had laid hold on John, and bound him, and put him in prison for Herodias' sake his brother Philip's wife.
4. For John said unto him, It is not lawful for thee to have her.
5. And when he would have put him to death, he feared the people, because they counted him as a prophet.
6. But when Herod's birthday was kept, the daughter of Herodias danced before them, and pleased Herod.
7. Whereupon he promised with an oath to give her whatsoever she would ask.
8. And she, being before instructed of her mother, said, Give me here John Baptist's head in a charger.
9. And the king was sorry: nevertheless for the oath's sake, and them which sat with him at meat, he commanded it to be given her.
10. And he sent, and beheaded John in the prison. And his head was brought in a charger, and given to the damsel: and she brought it to her mother.
11. And his disciples came, and took up the body, and buried it, and went and told Jesus.
12. When Jesus heard of it, he departed thence by ship into a desert place apart: and when the people had heard thereof, they followed him

ym of sht; otargre t ofe fael zok Zhrcyn.
13. Jar mekeyn of ym hrn ry ok ohe. cys ale t sh. cys ol Zhrcyn ze ol exlymkre by ol Sfz.
14. Ey ze ym hrn polrle by ozk ohe, t ale sh ry.
15. Ey ze ozk zol, ain ozk ayzokrrrolre.
16. Jal t ale nrk ol Zhrcyn, far of ym ole ze fshcyn Azs-ayzhr, cys of ozk rolol ale ey ofe pael;
17. Jeay ol Sokols ze wam; ory ol ofrre ayrzk ohrln ohrlp, ta-ayre y ofsn ole zye. ohrlp ofsn ole; ozp ze ofe ole; ofe of ole-rolre ale ze, far ym of ry ze.
18. J ale ole ehm ze afzrmkrolp: t ale afz ey ze.
19. Ofy Jahrn ofm, far ol ayrke rofsn zk ofe ofre; ozk ze sh zk: otargre t ale, ze ym ale zmrf.
20. Ja cys ofe of ym ofe cys t ja ey ozk Zhrcyn, far ze ey zke, far t ey ofe.
21. Oh cys ozn ozk ofe azokrrrolre, far ohrlsn cyre, ok y le cys ofsln zl: far ok cys ofsln ze ym zf ofsn zk ofe Zhrcyn, far t ale ozk ole, far ale zokrolre ofrlrym ze ole.
22. Dohrlp ofs fael ole, ofe Jahrlsfy. Wzrr, ozp le y cys cyre ale zokrolrel cyrlrym fael sf, far ofe fael ze ofrre?
23. Dohrlp frrrym far ofs fael ole, ey / ofe ozk zk, of ale ohrn ozk ofrre: far ozk Zhrcyn ale ozk ole, far ze ale azp fael ole, far ofze ak fsfel ale ole.
24. Oh cys ofsln zf ofe ohrlsn ofe ozk ofkre: far ze ofre ale ze ofy le ofe ozke, ozp ze Zhrcyn ale ofrs zk.
25. Ohe ylre ozp t zokrolre fael ze, ofle ozp rokrolre ze sf.
26. Ozk ze Afzrmkrolp, ale le ze Ofrrel Ofre, ozko ze Zhrcyn ale

ST. MATTHEW. vi. 9-15.

ΟΥΤΩΣΟΥΝ ΠΡΟΣΕΥΧΕΣΘΕ ΥΜΕΙΣ ΠΑΤΕΡ ΗΜΩΝ ΟΥΡΑΝΟΙΣ
ΑΓΙΑΣΘΗΤΩ ΤΟ ΟΝΟΜΑ ΣΟΥ ΕΛΘΕΤΩ ΗΒΑΣΙΛΕΙΑ ΣΟΥ
ΓΕΝΗΘΗΤΩ ΤΟ ΘΕΛΗΜΑ ΣΟΥ ΩΣ ΕΝ ΟΥΡΑΝΩ ΚΑΙ ΕΠΙ ΓΗΣ
ΤΟΝ ΑΡΤΟΝ ΗΜΩΝ ΤΟΝ ΕΠΙΟΥΣΙΟΝ ΔΟΣ ΗΜΙΝ ΣΗΜΕΡΟΝ
ΚΑΙ ΑΦΕΣ ΗΜΙΝ ΤΑ ΟΦΕΙΛΗΜΑΤΑ ΗΜΩΝ ΩΣ ΚΑΙ ΗΜΕΙΣ
ΑΦΗΚΑΜΕΝ ΤΟΙΣ ΟΦΕΙΛΕΤΑΙΣ ΗΜΩΝ ΚΑΙ ΜΗ ΕΙΣΕΝΕΓΚΗΣ
ΗΜΑΣ ΕΙΣ ΠΕΙΡΑΣΜΟΝ ΑΛΛΑ ΡΥΣΑΙ ΗΜΑΣ ΑΠΟ ΤΟΥ ΠΟΝΗΡΟΥ

SPECIMEN OF SCRIPT-TYPOGRAPHIC.

[I. Cor. xiii.]

Though I speak with the tongues of men and of angels, and have not charity, I am become as sounding brass, or a tinkling cymbal.

2. And though I have the gift of prophecy, and understand all mysteries, and all knowledge; and though I have all faith, so that I could remove mountains, and have not charity, I am nothing.

3. And though I bestow all my goods to feed the poor, and though I give my body to be burned, and have not charity, it profiteth me nothing.

4. Charity suffereth long, and is kind; charity envieth not; charity vaunteth not itself, is not puffed up,

5. Doth not behave itself unseemly, seeketh not her own, is not easily provoked, thinketh no evil;

6. Rejoiceth not in iniquity, but rejoiceth in the truth;

7. Beareth all things, believeth all things, hopeth all things, endureth all things.

8. Charity never faileth: but whether there be prophecies, they shall fail; whether there be tongues, they shall cease; whether there be knowledge, it shall vanish away.

9. For we know in part, and we prophesy in part.

10. But when that which is perfect is come, then that which is in part shall be done away.

11. When I was a child, I spake as a child, I understood as a child, I thought as a child: but when I became a man, I put away childish things.

12. For now we see through a glass, darkly; but then face to face: now I know in part; but then shall I know even as also I am known.

13. And now abideth faith, hope, charity, these three; but the greatest of these is charity.

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SPECIMEN OF SCRIPT-TYPOGRAPHIC.

[I. Ojulzrulfss bulo. xcm.]

Mjz lu sofia ilm ml bjzs ly zjf lzz ly hzzvlws, lzz ojz zjg brjolol lu lg dlajf ls sjzzzlz dwjis, zy / wlzdwlz slxdjw.

2. Lzz mjz lu ojz ml qlzg ly dvjzlsl, lzz jzzjsjzz gjw xlsrjolz, lzz gjw zjwjrv; lzz mjz lu ojz gjw 3jry, sjz mjg lu ajz ulxdjg xjzzrjzz, lzz ojz zjg brjolol, lu lg zjrlz.

3. Lzz mjz lu ulsrjz gjw xl qjzz ly 3jry ml mjy, lzz mjz lu qlg xl dzzl ly ul ujzzz, lzz ojz zjg brjolol, lu dvjzlsl xl zjrlz.

4. Brjolol sjzjsl wzz, lzz ls ajhzz; brjolol pzdl zjg; brjolol zjrzl zjg lvsqw3, ls zjg ujzg jg,

5. Ujy zjg dlofly lvsqw3 jzzsjxwl, sjrdl zjg ojw zjz, ls zjg hsdlwl dvjzqzdg, rldzdl zjz hdlw;

6. Ujxvzysl zjg ly lzlawlol, ujg ujxvzysl ly ml bwjy;

7. Djlsl gjw rlzs, dwjhzl gjw rlzs, ojzol gjw rlzs, pzxvjhsl gjw rlzs.

8. Brjolol zpzl 3jrwl: ujg zjrl mjy ul dvjzlsls, rly yjw 3jrw; zjrl mjy ul bjzs, rly yjw sjrs; zjrl mjy ul zjwjzv, ly yjw 3jzlr jzly.

9. 3jy ul zjz ly ojyg, lzz ul dvjzlsl ly ojyg.

10 Djg ·zjz mjg rlgr ls ujysjg ls ujzb, rlpz mjg rlgr ls ly ojyg yjw ul zjz jzly.

11. 3pz lu zjz / brjwz, lu sofia ls / brjwz, lu zzjsjzjz ls / brjwz, lu rjgr ls / brjwz: ujg 3pz lu dwjzjb / zjz, lu ojg jzly brjwzlr rlzs.

12. 3jy zjz ul sji rwj / qwjis, bjyawl; ujg mjz 3jrs ly 3jrs; zjz lu zjz ly ojyg; ujg mjz yjw lu zjz hsdi ls gwsj lu jzjz.

13. Lzz zjz /wlzlr 3jry, ojzw, brjolol, rlis rwj; ujg ml qwjhjslgs ls rlis ls brjolol.

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